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PAST AND PRESENT HEALTH METHODS IN LOUISIANA*

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Louisiana in every aspect of her history is unique; in the evolution of her health service no less so than in her political and social development. For many years, like Louis XIV, New Orleans thought and acted *"L'état, c'est moi"*; for her the state did not exist. Even yet, like many other cities, she is, where affairs of state are concerned, absurdly egoistic. For many reasons the attitude seemed logical, and in everything pertaining to disease especially so. Did not yellow fever and cholera attack the city first, always? Therefore, if money was to be spent in sanitation or protection, where should it be expended but there? If the city were free from pestilences, were not the people of the state safe? It was futile to argue a proposition so apparent. If the citizens of Louisiana outside of New Orleans thought at all on the subject they, too, concurred that it was from the city the inevitable epidemics spread; then why concern themselves with the lack of health supervision in the state?

As far back as 1797, an observing Creole gentleman is quoted as saying during the period of digging the Carondelet Canal, "in its neighborhood the fevers were awful, even with creoles." In 1811, 1817, 1819, 1822, 1832, 1833, 1837, 1848, 1849, 1850 and 1853, yellow fever and often cholera took their toll of human lives, sometimes few, sometimes thousands. During this period there were occasional boards of health continuing two or three years, with long intervals intervening. Having little authority or means, they were mere boards of record, and little benefit resulted from their efforts. In 1853, there was in existence one of these boards and, "the city council having adjourned for the summer," it appointed a sanitary commission to inquire into "the origin and mode of transmission or propagation of yellow fever; to inquire into the subjects of sewerage, common drains and quarantine, and to make an examination of the sanitary condition of the city." For the student of history the report of this commission is interesting reading. It was published in a volume of 560 pages, which one must have good eyesight to read. The conclusions as to the origin of yellow fever are ingeniously built up, but the recommendations of the commission read astonishingly like some of our own in the year of grace, 1914.

The decimating epidemic of 1853 moved the legislature to action and a new law was passed with an appropriation of $50,000 for erection of buildings and establishment of a more effective maritime quarantine. The "nine competent citizens" appointed to carry out these measures were selected because of their known zeal in favor of the strictest possible system of quarantine. From 1858 to 1873, though the records of these stormy political days were poorly kept and no one at any time was overzealous in the reporting of yellow fever, it was known that the disease claimed its victims every year. In 1878, there were 4,000 deaths and at least 25,000 cases, with a recurrence in 1879 not only in the city but in twenty-five other points in the state. Quarantine in all its details absorbed the funds and time of the Board of Health. Strife, disappointments, failures, honest effort to prove honest convictions, marked the days of the struggle. Finally, in 1885, a system evolved through many years' experience, the most effective yet, was put into operation.

Not until 1879 did there come an awakening as to the necessity for permanent organization of a health department. In the revision of the constitution in that year provision was made for a board of health which, to quote from a report, "began its labors with scant resources and with the quarantine buildings in a dilapidated condition." All members of this board were citizens of New Orleans, three appointed by the governor and four by the "common council" of the city. It was in no sense a state body.

In 1898 the constitution was again revised and, at last, after eighty-six years of statehood, the legislative body decreed that there should be a board of health with state functions. Where there was such dire need for this form of civic service, it does not seem credible that it could have been so long delayed.

The new board found itself without sufficient authority and gave its efforts to obtaining legislation for increased powers. It endeavored also to extend activities, but yellow fever and maritime quarantine still loomed large in the health horizon; they would not "down" and so in spite of itself, this board also walked in "trodden paths." However, when proof was clear that the mosquito was the transmitting agent of yellow fever, an educational campaign was planned and in 1905-'06 many lectures were given throughout the state. Epidemics of small-pox and typhoid diverted these efforts and after one season the educational feature languished.

The casual student of these annals is impressed with the slow growth of the service and the apparent lack of definite accomplishments; but to one who understands conditions and the temper of the people, another aspect is revealed. Once I had the pleasure of knowing a skilled engineer, a great man, who finished every narrative of experiences with the statement, "every

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project worth while takes its toll in human lives." It is the thought of Kipling expressed in the lines:

"Lift ye the stone or cleave the wood, to make a path more fair or flat—
Lo, it is black already with blood some son of Martha spilled for that.
Not as a ladder from earth to heaven, not as an altar to any creed,
But simple service, simply given, to his own kind, in their common need."

There had been presidents and members of these boards of health from the earliest days of the struggle who felt the obligation to do more than was done. With the broader outlook and additional knowledge of the nineties, presidents of the state board had recommended and urged the adoption of modern methods. Their efforts were unappreciated, unrecorded, but the "simple service simply given" made possible the dawn of a better day.

I have taken this much of your time to make clear one phase of the situation—the historical—to show that up to a recent date there was no organized health force at work on general problems; that for some years after provision was made for a state service, it seemed impossible to change the routine of former years. I must further trespass on your time, to bring out another aspect—the psychologic. It is traditional with us to keep in the realm of the subconscious many things, which, if allowed to come to the surface of conscious thought, would prove disquieting. We refuse with cheerful whole-heartedness to acknowledge civic shortcomings; in fact, we pride ourselves on being true to customs and habits—hygienic or otherwise—which have been handed down.

This attitude in the past was concrete in the feeling that insanitary conditions, infections, even an epidemic, should be kept secret. "Yellow jack" and commercial stagnation were synonymous. Every one knew the "fever" was present almost all the time, so why publish the fact? With present knowledge of the manner in which diseases are transmitted, it is hard for us fully to appreciate the feeling of loyalty which was the foundation of this mistaken policy.

In 1910, the State Board of Health was twelve years of age. It had made a tentative attempt to establish a new era; it had touched the life of a few communities in which epidemics had existed, but in the main, it had worked for necessary legal authority to straighten out the quarantine tangle.

It was in the fall of this year that the present board decided to break the barriers of tradition and become an active factor in the civic life of the people. It did not take genius or learning or special insight to know that instruction was the thing needful. Nor did it take much reflection to realize that the lessons must be carried into the home life of each individual.

To meet this, through the courtesy of two public-spirited railroad presidents, one rainy November morning there rolled out of New Orleans two cars filled with "health" exhibits, and scheduled to make a stop at every city, town, village and cross-roads in the state. It was a "free show"—there were beautiful specimens of the heart, lungs, brain, and other "innards"; models that worked; models that indicated how a dairy should be built, a market arranged; cases of food which warned the housewife what not to buy; and bottles of patent medicines with warning cards to catch the eye of victims. Infant, school and home hygiene, with disease prevention and health promotion were illustrated—and it was free.

The exhibits gave opportunity to be very hospitable—to invite the mayor to see the "show," assuming that he was interested in everything pertaining to the welfare of his community, and to suggest that it would be a pleasure to inspect his town and give it a "score"; the teacher was invited to bring the school and, if he desired, some one could talk to the children first so they would "see" more intelligently and in the meantime the schoolhouse and grounds could be inspected. No public official or physician was slighted; all were cordially invited. Those engaged in serving the public as food purveyors, or otherwise, were dealt with as public servants. Every dairy, slaughter house, market, bakery, every drug store, every general store, which had on its shelves medicines, every jail, courthouse and lockup, was visited and "scored." Every owner, manager, or official whose name went on the card was sent a letter which gave details and, if needed, recommendation for improvements. If the "score" was "bad," instructions were explicit with "time limit" and if "very bad" the orders were "shut up and clean up."

Every evening, often in the open air, motion pictures were given, free, and at the meeting the results of the day's inspections were read. Without comment, the record of a market was given in full. Here is a typical report of a restaurant:

——— restaurant, S. ———, proprietor, is generally insanitary; the kitchen is very bad; no screens and numerous flies around; very bad water-closet about 20 feet from kitchen door; back yard dirty. Ordered a general cleaning and place screened. If this is not done in a reasonable time this place also should be closed.

That there should be no criticism or discrimination, the condition of the town or village was given. Water-supply, sewerage system, closets, garbage and waste collection, and the condition of public buildings were noted and commented on. For example, I quote from a report to the mayor of a city and president of police jury of a parish, December 22, 1910:

During two days I have visited 8 meat markets, as many restaurants, 9 dairies, 1 butcher pen (which I am told represents the condition of all others), 3 jails, 1 school and made a number of observations around the city.

Many of your restaurants need a general cleaning, especially the kitchens. The bakeries need soap and water, with whitewash and more light.

Of the 9 dairies visited not one would be entitled to a score of 20 (counting 100 for perfect). I was much impressed by the number of separators. One dairyman claimed he sold butter only, yet we found another dealer buying daily from him, and, of course, we can only conclude somebody is getting milk from which the cream has been removed. Go out and take a look at the dairies and decide for yourself whether or not you desire to continue the use of milk.

One slaughter-pen visited was said to be an index to the others. If this is true conditions could not be worse. Your city council should pass an ordinance requiring a central abattoir and provide a meat inspector. Your meat markets would do fairly well if provided with a sufficient quantity of water to clean the instruments for cutting and handling the meats. We found one man skinning a cow in the market. This should not be tolerated. . . . Your theaters are not properly ventilated; we refer especially to the moving-picture shows.

There are too many surface closets, and the work being done by your scavenger is distressingly defective. This should be changed so as to place the service under the supervision of your local board.

The parish jail is bad in all respects with nothing to commend it, and we demand that the old structure be replaced by a new and modern prison, or the old one be thoroughly overhauled so as to make it meet the requirements. Your city prisons are, one very defective and the other a hundred years antiquated. Give them the necessary attention.

The Central High School Building is full of decaying timber; the heat and ventilation are both bad; the privies are very bad; and duty to the schoolchildren and teachers demands that these buildings be placed under ban.

Your health officials are underpaid. They are timid and afraid to urge the enforcement of laws, as the public will not uphold them.

In all reports no favoritism was shown, no personalities injected. It was assumed that the citizens had a right to know and wanted to be informed as to conditions in places where they purchased food, or in the buildings where their children went to school or worked.

This high-handed and unheard-of criticism of officials and others was a bolt from a clear sky. What was the Board of Health and who was its president that he could order coal oil poured over the sausage and steak because he found maggots in the ice-box and in the meat? "Cooking killed the maggots; they didn't hurt." One man, a baker, when told he needed a bath and a clean shirt, said, "Doc, it's a good thing you hit the right day; this is tub night and time for a clean shirt. I just have one a week." His good humor was typical. There was astonishment but little resentment. Many accepted inspection as an inconvenience to be endured, but as an experience that would not occur again. They did not then know our tenacity of purpose.

It did not take long for the story of these "outlandish doings" to get abroad and we were overwhelmed with invitations. No community wanted to be left out. Soap, hot water, the white-wash brush, the rake, the shovel, the hoe and the garbage cart were brought into requisition in honor of our arrival and many a little town prided itself on being clean until attention was called to shortcomings. One fine old gentleman, mayor of a village, on being complimented, said, "Well, Doctor, I have been cleaning for a week, but my God, man, you don't think I can keep it up?" It took seven months to make the trip, but it meant a "spring cleaning" which was for many communities a new experience.

It was not only those engaged in business involving health who were shocked at these "new-fangled" lessons in cleanliness and sanitation. Dear old gentlemen and ladies—and some not so old—who had accepted sickness as inevitable, a cross to be borne because sent by an all-wise Ruler, were outspoken in their conviction as to this new "gospel of health." Men had died and worms had eaten them since the day of Adam and here was a doctor with a "health" train who would have the people believe that for the sin of uncleanliness they suffered typhoid fever; that "whom the Lord loveth he chasteneth," when the milk is unsterilized.

Since 1911, the board has bought two cars—one for permanent exhibits, the other for administration office, laboratory, and living quarters. With exhibits better planned, grouped and more pertinent to the needs of the public, two other extended trips have been made over the state and many short ones, each with some definite purpose in view. "Does it pay?" is the question asked by every health officer interested in the welfare of his state. Let us analyze.

While some things of note have been accomplished, they are few as compared with what we hoped for. We have striven for improvement in essentials.

To refer to the historical again: Local units as far back as 1882 were empowered to organize boards of health. Later, in 1902-1904, a simpler mode of organization was enacted, but up to recent years there were few such boards. It is evident that such bodies must be formed and informed with the spirit of the work before much can be done, so we have bent our efforts in this direction. Out of 195 incorporated cities, towns and villages, 104 report duly qualified officers and nominally, at least, every one of the sixty-four parishes has an organized parish board of health. Scarcely a third of these bodies can be called dependable except in an emergency; this is logical since with three exceptions, not one has sufficient funds to attempt effective work.

The outlook is encouraging, however. In a number of parishes there is a willingness to combine budget items for health by the police jury and school board, and with this fund employ a whole-time health officer. There is approval, too, of the "Tech" plan endorsed by Professor Sedgwick, of having one officer serve a number of communities. The great obstacle to this form of cooperation in Louisiana as elsewhere is the unwillingness of the "ward boss" or the dominant political faction to lessen the number of officials even in the interest of improved public service. What we need in health administration more even than increased appropriations is freedom from political domination. There will never be effective service until this reform is wrought.

I shall not attempt a list of things done. It may not be out of place, however, to mention those which we have won by tenacious, if impatient insistence, and the help of the courts. The greatest of these was the establishment of the constitutionality of our regulations. The city of New Orleans joined with our enemies to prove we had no power over the city and that our Code was unconstitutional. The Supreme Court gave us a favorable ruling both as to legality and police power. It was said we could not enforce the wrapping of bread; that the mayor could not be made to screen the city markets; that the people would not stand for prohibition of the common drinking cup and the common towel; that hotels would not meet the requirements; and that the parishes in which courthouses and jails were condemned would not provide new buildings. The doubting Thomases failed in their estimate of public interest. They were wrong; the board was right and we have had public support in all these things.

Realizing, as all health officers do, the need and value of vital statistics, in 1911 an effort was made to put into operation a system of collection of these records. In the face of tradition, we made postmasters local registrars and I am happy to say, we are now on the high road to admission into the registration area. Through the Department of Public Health, we have been given the franking privilege for morbidity reports, and, during the year 1914, a good beginning has been made for complete returns. Syphilis, gonorrhea and chancroid have been added to the reportable list.

The supervision of milk has been extended to all portions of the state; the dairies now average one-third higher than in 1911, and we have reason to be grateful for the support given us by the dairymen and others engaged in the production and sale of food.

Among the amendments to our Code, there is one which we have as yet only promulgated. It sets forth the requirements relative to the doctor's office. The board has been censured for implying by this regulation that the physicians are derelict; but it grew out of observation, and when the time comes for action not a few physicians will be astonished at their "score."

Every year one special line of work is emphasized. In 1912-1913, as a preparation for further effort, we removed from general stores harmful drugs and many patent medicines; later, analyses were made of a large number of the most popular of these nostrums. Last June the legislature gave us a law which prohibits fraudulent advertising. Armed with this and our own records, in 1915 we shall enter into what may be a losing fight against this powerful enemy.

In the realm of the intangible, two things are clear—the people have been brought into touch with a service of which, heretofore, they knew nothing. There are thousands to-day to hundreds in 1910 who know what to do to get redress from dishonest and unscrupulous food purveyors; who know that the state has provided means of protection and who, in an emergency, write or telegraph for assistance. As proof of this, the volume of office correspondence has increased tenfold and the range of inquiries in like proportion. Even in the remote rural regions, the state Board of Health has become—it may be a club or a bone of contention—but certainly an entity.

A second gratifying result is the acceptance of the policy of publicity by an ever-increasing number. When reports were read at night meetings on the first tour of the car, there were hundreds who came to listen, doubting the wisdom of such drastic methods. They wanted to hear, every one did, but they were skeptical as to the outcome. To hold up the filthy condition of a market, they said, will ruin the business; to tell us the baker is not clean will cause him to lose customers; it is not fair. Now they say, "We have a right to know; let him clean up." More than this, they write us, "The stores do not keep their food products covered; dogs stay in the market; we find mice in the bread; the children use a common cup—why don't you come and prosecute 'somebody'?" Control of infection by isolation is not universally popular or understood, but no community now makes an effort to conceal the presence of a communicable disease. Is the change in the public mind worth while? We think it all-important as a foundation for an intelligent demand for better service.

Our policy of publicity has been heartily condemned and as cordially commended. We assume that publicity is due the people whose servants we are. The office records are open to any one at any time. Complaints, calls for assistance, reports, everything in the mail is open to the reporter. Sometimes we suffer because of the point of view or the haste of the headline editor, but the policy is sound. The press, whether adversely critical or otherwise, is our best friend and ally.

Public-health work in our section has all the complexities and perplexities found elsewhere, and, in addition, others which do not obtain in many portions of the United States. You have typhoid, tuberculosis, venereal diseases, infant mortality, insanity and faulty rural sanitation; so have we, but in addition we have hookworm and pellagra and—we have the negro. He is the most difficult problem and he is so because we will not acknowledge him to be such. During 1914 we made special surveys of negro neighborhoods in New Orleans and other cities; we sent a negro teacher and lecturer with a moving picture outfit into many remote districts and we gathered what statistics we could of the prevalence among them of tuberculosis and venereal diseases. These investigations give us pause, for they prove beyond doubt that the negro is, indeed, in matters of health, the white man's burden.

This desultory sketch would be incomplete if I did not touch on our work in its relation to the physician. A full analysis would carry us into a discussion of the present medical order with its inheritances and its possibilities—the practitioner and the specialist, the sanitarian and the physician-administrator—the old type and the new—those who fear and those who are filled with courage. On the tours of the state with the exhibit cars, physicians and health officers have been unvarying in their courtesy. They acknowledge the need of this work in their own communities, but many think it a hopeless task. They do not believe the public can be convinced except through the "process of the suns"; some feel that aggressive methods are not in keeping with the dignity of the followers of Aesculapius. There is the conservative shrug and the tolerant smile, but beneath this with many—is the spirit of "God speed you" and "may your enthusiasm last." A few, from the first, have been wholly sympathetic and helpful, but candor constrains me to add that by far the greater number have regarded the movement as a doubtful experiment. It is natural that the rural physician who has not the perspective of new lines of work, should hesitate to accept radical teachings of—a health officer; likewise, it is natural that men who have for many years jogged along in the even tenor of their way should not feel enthusiastic toward modern innovations and experiments. But the doctor is, I almost said, the noblest work of God. Whatever his limitations, he is foremost in every age in the ranks of those who sacrifice themselves for the good of mankind. I have faith that whether our work now is furthered or condemned, the future will make plain its purpose and its value.

In the turbulent days of her early history, Louisiana's health code consisted of a few simple rules. "Early coffee" will keep off "the miasma" was, I think, the most popular and certainly the advice which met with general acceptance. Some of the wise conservatives "shut doors and windows at sun down" and "breathed not the night air," but to this the pleasure-loving paid little heed. With the growth of trade the vessels at the gate were the enemy. Activities centered on this menace to peace and happiness, but the thoughts of men were widened and with their discoveries there came new light and a new régime. We were slow to accept, but I am hopeful that the day of deliverance from sanitary evils is at hand.

The Clinical Art.—We may never forget that what is termed the humanity of our profession relates not merely to kindness, gentleness and sympathy. Our duties must take note of the specially human characters and varied peculiarities of the individuals we treat. This concerns very largely the management of patients, a great clinical art and equipment. We begin our professional work by studying Nature in all her forms, and, as Charles Kingsley remarked, "if we do not know Nature we cannot know art."—Sir Dyce Duckworth, *The Lancet*, Nov. 28, 1914.

A STUDY OF REVERSAL OF THE CIRCULATION IN THE LOWER EXTREMITY

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The operation for reversal of the circulation in the lower extremity, or arteriovenous anastomosis, began to receive attention soon after blood-vessel suturing was put on a stable basis by the work of Carrel and others a little more than a decade ago. Certain cases of gangrene of the foot and leg are caused by gradual occlusion of the arteries in the lower extremities. This is due to some form of arteritis in which the intima plays the most prominent part and the artery walls become so thick that complete occlusion may occur. As a rule, the veins are but slightly affected. The arterial current has been switched to the veins with the idea that the arterial blood pressure would force the valves in the veins, and arterial blood would reach the ultimate capillaries of the foot, so conveying nutrition to the tissues.

Complete reversal of circulation in the lower extremity, i. e., attaching cardiac end of artery to distal end of vein and distal end of artery to cardiac end of vein, can be of no practical importance, since the operation would be indicated only when there was such disease of the arteries as to occlude them completely or partially.

A number of surgeons have done arteriovenous anastomosis with varying results. Among those who favor it are Carrel and Guthrie, Bernheim,[1] Wieting[2] and Goodman.[3] Wieting, whose experience has been quite extensive, asserts that the operation is clinically successful in his hands, though he admits that there are many questions which have not yet been settled. Bernheim is rather enthusiastic over the beneficial results obtained by reversing the circulation. Charles Goodman[3] reports a series of fourteen cases in which he reversed the circulation. In thirteen of these the end-to-end method was used and in one the side-to-side method. Of the fourteen operations, six were successful. Of eight cases in which failure occurred, including one death, one was a side-to-side, or lateral, anastomosis. Wieting used the intubation method nine times with two successes. Most of the operators, including Wieting, Bernheim, J. B. Murphy, and others, think that a lateral anastomosis with ligation of the vein on the cardiac side would be preferable to end-to-end anastomosis, as in this manner there are two channels instead of one, and the artery distal to the anastomosis is not put out of commission.

Carrel and Guthrie[4] reported experiments in reversal of the circulation, and conclude that reversal of the circulation in the limb of a dog is possible and that it can be established by an end-to-end arteriovenous anastomosis, but not by a lateral anastomosis. On the other hand, Coenen[5] of Breslau asserts that the operation is practically worthless clinically; that not all the valves give away; that the blood is shunted off through the first large anastomotic vein to the heart, and that the operation is wrong both anatomically and physiologically. Halstead and Vaughan,[6] after reviewing the literature and reporting cases, conclude that reversal of the circulation has little practical usefulness. They say:

> Up to the present writing there have been no means proposed of breaking down the resistance of the venous valves to the backward flow of blood, except by the action of the arterial current itself. It is also still a matter of doubt how much of the reversed current reaches the periphery in these cases, and how much is short-circuited, and what the individual variations are in the different cases. It is not even known for certain whether the femoral or saphenous vein, or their branches, will carry backward to the capillaries sufficient blood to maintain, unaided by the other vessels, that is, the collateral arteries, the circulation in the periphery of the limb. All these questions still remain to be determined by further experimentation.

Fig. 1.—Cinnabar mass injected into the reversed circulation of Dog 12. The injection was made half an hour after operation. The roentgenogram shows that the cinnabar goes a little below the knee and returns toward the back part of the thigh in the direction of the branches of the iliac vein. In all of these roentgenograms the negatives were reversed when the photographs were printed, so the left extremity appears as the right.

In view of the greatly divergent views of prominent men, it has been puzzling to know just what therapeutic value can be attributed to reversal of the circulation in case of threatened gangrene through gradual occlusion of the artery. Undoubtedly, patients have improved after this operation when gangrene has not set in too promptly. Some operators have asserted that most patients have been benefited. On the contrary, patients operated on by other surgeons have not done so well. Frequently, it is stated that the line of demarcation of gangrene forms more quickly and that the stump seems to heal more

1. Bernheim, B. M.: Surgery of the Vascular System, Philadelphia, J. B. Lippincott Company, 1913.
2. Wieting: Deutsch. Ztschr. f. Chir., 1911, cx, 364; ibid., cxix, 369, 590.
3. Goodman, Charles: Ann. Surg., July, 1914.
4. Carrel and Guthrie: Ann. Surg., 1906, xliii, 203.
5. Coenen: Beitr. z. klin. Chir. (Bruns'), lxxv, 313.
6. Halstead and Vaughan: Surg., Gynec. and Obst., January, 1912.

promptly than would be expected if the reversal had not been done.

We have not been convinced that reversal of the circulation was of undoubted therapeutic value, and though one of us (Horsley) has had several patients in whom it might have been done, the reports were so contradictory that he felt this operation was hardly justifiable. In an effort to throw some light on the subject, a series of experiments was undertaken with the view of establishing what became of the blood in the reversed vein. In order to prove that the reversal benefits by directly giving more nutrition, it must be established that (1) the arterial blood in the reversed vein reaches the ultimate capillaries of the foot. Obviously, no benefit can obtain by the arterial blood merely running a short distance in the main trunk of the vein. 2. Can the arterial blood in venous capillaries deliver its nourishment to the tissues? 3. If the arterial blood reaches the venous capillaries, how is it returned to the heart? All of these points are interesting, but two have the utmost clinical significance: first, whether the arterial blood ever reaches the ultimate venous capillaries in the foot, and second, whether it is capable of delivering nutrition from venous capillaries if it reaches them. If either of these two problems is decided in the negative, the operation naturally has no practical value. It was with a view of determining the first problem that the experiments here recorded were undertaken.

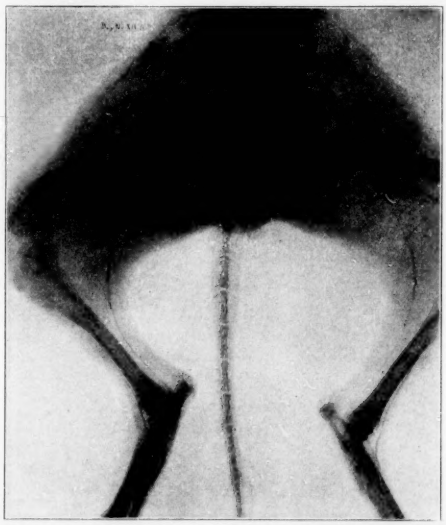

Fig. 2.—Both extremities of Dog 12 after injection of bismuth mass through the abdominal aorta. This injection was made immediately after Figure 1 was taken.

No more experiments were done than seemed necessary to prove the problem under investigation. All operations were performed under full anesthesia, and every effort was made to avoid inflicting pain.

Twelve operations were done by one of us (Horsley), all on the left lower extremity of dogs. The negatives were reversed in printing the photographs, so causing the left lower extremity to appear as the right. The anastomosis was done by the end-to-end method and cobbler's stitch, according to the technic already described.[7] This method secures broad surfaces of the intima in apposition and everts a flange. Its advantages are given in the literature mentioned.[7] While lateral anastomosis would be preferable, clinically, because it would not sacrifice the artery distal to the anastomosis, if attempted in a dog, objections might be raised that the artery of the dog is healthy, whereas in a patient with impending gangrene the arteries are partially occluded, and consequently the full force of the arterial blood stream in a dog would not be exerted on the vein, as most of the blood could be carried off through the normal, healthy artery. Injections in the vein of the cadaver would give but little information, as the enormous pressure from the syringe with its traumatizing effect could not be used in a patient. The end-to-end anastomosis delivers all of the arterial pressure into the vein, and creates the most favorable conditions for forcing its valves.

As a similar operation was done in each of the dogs, the central end of the artery being united to the distal end of the vein from one to two inches below Poupart's ligament, a detailed description of the operation in each instance is not necessary.

Of these twelve operations, two dogs died distinctly from sepsis. It is notoriously difficult, as has been pointed out by Watts and others, to secure aseptic healing in the femoral region of the dog, where infection from urine and feces is very liable to occur. In the later operations an effort was made to prevent this infection by closing the skin wound with catgut, fastening a small piece of gauze over the wound by means of six interrupted stitches through the skin, and fixing it with collodion. This dressing usually stays several days. It seemed to have some advantages, though two deaths from sepsis occurred when this method was used. Theoretically it is excellent; but practically, of the first two dogs in which this method was not used, one suppurated slightly, though the anastomosis was perfect, and the other healed primarily with occlusion at the site of anastomosis.

Five dogs were killed under ether, Nov. 27, 1914. They were Dogs 1, 2, 9, 11 and 12. Dog 8 died November 26 of some disease not connected in any way with the operation. He was injected and studied along with those that were killed. In Dog 2 there was complete occlusion at the site of operation. Dogs 7 and 5 died of sepsis, the surrounding tissue of the wound sloughing. In Dog 6 there was also marked suppuration and sepsis, though it did not seem to be sufficient to be the sole cause of death. Dogs 10, 3, 4 and 8 died of some condition not connected with the wound and which we called vaguely influenza. In all of these the post-mortem showed that the site of the anastomosis was patent and there was no thrombosis, except in Dog 3, in which a small white thrombus only partly occluded the lumen. In Dog 10,

7. Horsley, J. Shelton: Surg., Gynec. and Obst., May, 1914. The technic is more fully described in a monograph by Horsley, entitled Surgery of the Blood-Vessels, St. Louis, C. V. Mosby & Co.

which died three days after operation, the leg was greatly swollen and congested with venous blood, though the site of the anastomosis was entirely clear. It was hoped that these dogs would live a sufficient length of time in order that they could be killed and the venous and arterial system drained of blood, which would afford much better conditions for subsequent injection. Consequently, none of the dogs that died from disease except Dog 8 was injected; but a post-mortem was held in order to determine the condition of the vessels at the site of operation.

Analyzing the experiments from a technical point of view, we see that there were two deaths from sepsis and a third (Dog 6) in which sepsis played a prominent part and may have been responsible for the death. Of course, where the sloughing was extensive, the result was a failure. In two of these dogs the parts were so gangrenous that the vessels could hardly be recognized. Of the remaining nine dogs, seven operations were entirely and one partially successful, and there was only one complete failure (Dog 2). Two were operated on a short time before they were killed, one a half hour (Dog 12) and the other an hour and a half (Dog 11). As a rule, a thrombus, if it occurs, forms soon after the operation, and as there was no obstacle whatever to the injection, these anastomoses were evidently clear. But if only dogs that lived more than two days are counted, there are seven dogs with five completely and one partially successful result and one a failure. These results, if compared with end-to-end union in this region done by other methods, appear satisfactory.

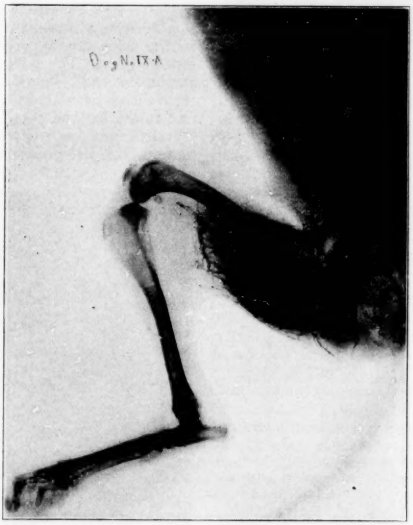

Fig. 3.—Cinnabar mass injected into the reversed circulation of Dog 9. Injection was made nine days after operation. The roentgenogram seems to show that the mass went at least no farther than in Dogs 11 or 12. Note cinnabar mass in vena cava.

Only five of the twelve dogs were injected, examined by Roentgen ray and dissected, for the reason that it was believed it was necessary to bleed them to death and leech out the blood with salt solution in order to secure a satisfactory injection. One animal (Dog 8), which died the day before the dogs were killed, was held over and injected, and there seemed but little difference so far as the Roentgen ray showed, between the injections in this dog and in those that were bled to death. In one of the five dogs that were bled (Dog 2), there was complete occlusion of the anastomosis; so these reports of reversal of the circulation are made from four dogs that were bled to death and leeched of blood by salt solution, and one dog that died from some extraneous cause not connected with the operation, probably from some form of influenza. Dogs 11 and 12 were injected an hour and a half and a half hour, respectively, after operation.

The injections were made as follows: In a 10 per cent. solution of gelatin was mixed as much powdered cinnabar as would permit the mass to flow freely. This mass was injected while hot into the distal end of the femoral artery about an inch above its union with the femoral vein. The injection was made by gravity. The funnel was held about five feet above the level of the dog, the rubber tube being stripped with the fingers. The pressure must have been greater than the normal blood pressure of the dog, though no effort was made to measure it. In this way the mass might go even farther than the reversed arterial blood, because it may have broken down valves of veins under a pressure greater than the normal arterial blood pressure. It may be assumed that the pressure of the injection was at least equal to the normal blood pressure of the dog and was probably greater. The artery was tied after being injected.

A roentgenogram was taken of the left hind extremity, and the abdomen was opened and the distal portion of the abdominal aorta was injected with a 10 per cent. solution of gelatin in which as much bismuth was mixed as would permit the mass to flow freely. A second roentgenogram was then taken of both hind extremities, in order to contrast the normal circulation in the right extremity with that in the left.

PROTOCOLS (DISSECTION BY WHITEHEAD)

Dog 12.—The injection was made half an hour after completion of the operation. The femoral vein below the operation, and the saphenous, popliteal and recurrent tarsal veins were distended with the cinnabar mass as far as the level of the knee. Here the mass stopped abruptly and returned into the iliac veins through the deep femoral, internal pudendal, and gluteal veins by means of their anastomoses with branches of the veins below the site of the operation. The arteries throughout the limb were well injected with the bismuth mass.

Dog 11.—The injection was made an hour and a half after operation. No dissection was made, but the roentgenogram showed about the same condition as in Dog 12.

Dog 9.—The injection was made nine days after the operation. Here also the injection stopped abruptly at about the level of the knee, and returned to the veins above the site of operation chiefly through the channels noted in the case of Dog 12. In this dog, however, these return channels were considerably enlarged, appeared more numerous, and were distended with the injection mass. The distention was marked also in the iliac veins and in the inferior vena cava. The arteries were well injected.

Dog 8.—This dog died twenty-two days after the operation and was injected the following day. The cinnabar mass extended to the middle of the leg. The return channels throughout the thigh and upper half of the leg were

apparently greatly increased in number, all the veins of the parts, both superficial and deep, being concerned in the process. They were markedly enlarged and tortuous, but their walls did not appear to be thickened. The arterial system was not well injected with bismuth below the site of operation, doubtless because of some technical error, as the arteries appeared quite normal, except that the deep femoral and the branches of the popliteal were somewhat

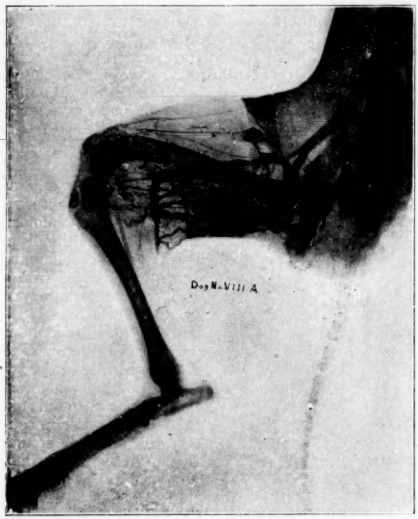

Fig. 4.—Cinnabar mass injected into the reversed circulation of Dog 8. The dog died twenty-two days after operation. It was preserved for twenty-four hours and then injected as in the other dogs. Note the very large collateral veins that conduct the mass easily to the iliac veins and the vena cava. Also note the cinnabar mass in the vena cava.

enlarged when compared with the corresponding arteries of the opposite side.

Dog 1.—Injection was made forty-six days after the operation. In this animal the venous injection reached the foot. The enlarged and tortuous condition of the venous branches, which was so marked in Dog 8, is not evident in the thigh, but is quite well marked in the leg. All the veins, however, both superficial and deep throughout the thigh and leg, contain the injection. The roentgenogram does not give a correct interpretation of the condition of these vessels; evidently the injection mass did not contain enough cinnabar to make solid shadows of all the veins. The branches of the deep femoral and popliteal arteries were enlarged, and extensive anastomoses between them, especially in the substance of the posterior femoral muscles, were evident; that is, an arterial collateral circulation had developed.

The Roentgen ray shows that in four (Dogs 12, 11, 9 and 8) of the five dogs, the injection mass reached only a short distance below the knee, and that it returned through the back part of the thigh and in the general direction of the branches of the iliac veins. In Dog 8 (twenty-two days) the vessels show enormous collateral venous circulation which apparently conducted the blood quickly into the branches of the iliac vein. In Dog 9 (nine days) and in Dog 1 (forty-six days), which were bled to death, the cinnabar flowed freely from the cut external jugular vein soon after the injection into the reversed circulation was started. According to the Roentgen ray, the cinnabar mass in the reversed circulation did not go far below the knee in any of these dogs except in Dog 1. In Dog 1 the Roentgen ray shows that the cinnabar goes almost to the foot, and the dissection demonstrates that it goes a little farther than the Roentgen ray indicates. The roentgenograms reveal the inferior vena cava filled with cinnabar in all the dogs except those killed shortly after operation.

The second series of roentgenograms made after the bismuth injection, which gives the general arterial circulation in both legs and both feet, shows quite clearly that below the thigh the arterial circulation is practically the same in the left leg and foot as in the right leg and foot. The second roentgenogram in Dog 1 was not satisfactory, but showed some bismuth in the arteries of both legs. The other four pictures of the second series were quite good. In Dogs 11 and 12, injected shortly after operation, the Roentgen ray shows that the circulation in the left foot and leg was apparently the same as in the right foot and leg. The collateral circulation here was so ample that the bismuth was carried in full quantities from the abdominal aorta around the point of obstruction to the leg and foot. This being the case in dogs that had just been operated on, it is not surprising to find that the collateral arterial circulation in the

Fig. 5.—Cinnabar mass injected into the reversed circulation of Dog 1, forty-six days after operation. The mass here has reached almost to the foot. Dissection shows that the mass went a little farther than indicated by the roentgenogram. Much of the cinnabar was drained off through the external jugular before it had hardened, so the large veins are not full. The Roentgen-ray plate, however, which is larger than the print, shows the mass in the vena cava.

dogs that lived nine days or longer was at least equally good.

It seems justifiable to draw the following conclusions from these experiments: 1. The tendency of the arterial blood in a reversed femoral vein is to

return to the vena cava by the nearest anastomotic route. 2. In the course of time very large anastomotic veins form so that the mass injected into the reversed circulation quickly and easily finds its way into the vena cava. 3. It is most probable that the arterial blood in the reversed circulation never reaches the ultimate venous capillaries of the foot, but if it does it must be after many weeks, long after the time that any good could be accomplished by bringing nutrition to the tissues, even if nutrition could be absorbed from venous capillaries. These experiments seem to show that even when the full arterial pressure of the femoral artery is turned into the femoral vein by an end-to-end anastomosis, the arterial blood in the reversed vein never reaches the venous capillaries of the foot, and does not even reach the smaller veins in the lower part of the leg for more than twenty-two days.

How, then, can we account for the apparent improvement in many of the reported cases of reversal of the circulation in patients? Certainly not all of these reports can be argued away, and they must rest on some basis of fact. In the successful cases reported, it has been usual to find that the day after the operation the foot appears warmer and the color is better than before operation. It has been asserted, therefore, that the improvement must be accounted for by the operation and by the fact that the arterial blood is reaching the distal parts through the reversed vein. A great many reversals of the circulation have been done by surgeons untrained in blood-vessel surgery who have used the end-to-end method, and it is natural to expect that there will be a large percentage of occlusions by thrombosis following such work. In no other branch of surgery is laboratory experience so essential as in preserving a patent lumen after suturing blood vessels. It is easy enough to unite the artery and vein so that the line of union will not bleed at the conclusion of the operation, but the technically successful operation is the one in which the lumen remains permanently patent. It seems to us that these temporary improvements are best accounted for in the following manner:

The cause of the impending gangrene for which these operations are done is partial occlusion of the artery, while the veins are but little if at all affected. An artery that would normally carry 100 per cent. of its capacity is under these altered conditions carrying only, say, 25 per cent. of its capacity, but the capacity of the veins has been but slightly altered. Now, nutrition for the tissues is taken from the arterial blood in the capillaries and depends not only on quantity and quality of this blood and the ability of the tissues to absorb it, but also to some extent on the length of time during which the arterial blood bathes the tissues. With the artery working normally and the veins normally, a definite physiologic period of time during which the arterial blood remains in the tissues is maintained; but with the capacity of the artery cut down to about one-fourth of normal or even less, and the capacity of the veins but slightly interfered with, the small amount of arterial blood that does reach the tissues is drained away by the unobstructed veins more quickly than normal. The arteriovenous anastomosis stops the venous current in the femoral vein either by the force of the arterial blood stream or, more probably, particularly when done by those inexperienced in vascular surgery, by thrombosis at the site of operation. This, of course, obstructs the vein and more nearly restores the balance between the venous and the arterial circulation. In other words, the operation dams back the arterial blood in the capillaries so that instead of being drained off too rapidly, the arterial blood is compelled to stay the normal time and possibly even somewhat longer than normal. In this manner the improvement as to the color and warmth of the affected limb can be accounted for. But if the occlusion has been by thrombus it will probably extend until too much of the venous system is plugged, and gangrene will follow.

It seems, then, that reversal of the circulation has no legitimate place in clinical surgery, except possibly in Raynaud's disease, if we accept the pathology of this disease as being solely a spasm of the arterioles. In this disease, if a reversal is done as close as possible to the terminal vessels, it might act by so raising the blood pressure in the veins as to cause an intense hyperemia in the capillaries and arterioles; the small vessels may be dilated in the same way as in Bier's hyperemia, only as there would be positive arterial pressure in the veins, the dilatation would be somewhat greater than after a simple Bier's hyperemia. If Raynaud's disease has no organic pathology and is merely a spasm of the arterioles, it is conceivable that this operation might be beneficial, not by sending arterial blood through the reversed veins into the capillaries (for, as shown by these experiments, this in all probability cannot occur), but by maintaining a constant dilatation of the terminal arterioles.

In impending gangrene due to organic disease of the artery of any kind, reversal of the circulation appears unjustifiable. It seems, however, that such cases may be materially benefited by merely ligating the femoral vein. This would tend to balance the circulation by obstructing the venous circulation and permitting the arterial blood in the capillaries to bathe the tissues a longer time than would be the case if the venous circulation was unobstructed. This operation, then, of ligating the femoral vein in threatened gangrene in the lower limb due to partial occlusion of the arteries appears to have a proper field. The resulting improvement should be as great as after any kind of arteriovenous anastomosis, and the operation is much simpler and less dangerous to the patient.

Our thanks are due to Dr. Charles M. Hazen of Richmond, Va., for the Roentgen-ray work in these experiments; to Dr. Arthur S. Brinkley, for assistance in the operations, and to Dr. A. A. Houser for help in injecting the specimens.

Children and Street Work.—Sixteen states and the District of Columbia now have some regulation of street work for children. According to the National Child Labor Committee eight other states are this year considering similar laws. One state with a fixed limit of age for street trading is now proposing to raise the limit. The bills before the state legislatures vary somewhat, but generally they fix an age limit, provide for badges or permits for children at work on the streets, give the school authorities power to grant and recall permits, forbid work at night and empower certain officers to enforce the law. In some states the provision is to be state-wide; in others it will apply to cities of certain size. The tendency is to make the age limit similar to that for child labor in factories. All street trades regulation aims to insure proper schooling for the child. The National Child Labor Committee calls attention to the fact that the most important thing in connection with these laws is to secure their proper enforcement, which is distinctly up to the people.

THE TOOLS OF OUR TRADE

THE INDICATIONS PRESENTED BY MENTAL DISEASE AND THE MEANS AT OUR COMMAND FOR MEETING THEM *

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PHILADELPHIA

Under the above caption I propose to review the means at our command for combating insanity after it has occurred. The discussion of prevention is foreign to my present purpose, as is also the general problem of the care of chronic cases. I will therefore leave untouched such questions as those of general hygiene, employment, retraining, after care, family life and like matters, and will turn my attention directly to the purely medical aspects of treatment.

In order that we should realize and view in their proper proportions the indications, possibilities and limitations of the therapeutic means at our command, we must first, though necessarily briefly, consider the nature of the problems confronting us. In other words, previous to an intelligent attempt at treatment, we must have some knowledge, or at least some idea, of the pathology of the diseased states with which we are dealing.

PATHOLOGY IN MENTAL STATES

Considerations into which I cannot enter here point unmistakably to the essentially toxic nature of insanity. In a recent paper on the pathology of insanity, I pointed out that the facts suggest that we have to do with biochemical processes akin to those of infection and immunity; and I instanced in this connection melancholia, which with its history of gradual invasion, maximum onset of symptoms, gradual subsidence and final recovery, presents a striking similarity to an infection. I cannot pause to cite the numerous facts proving the presence of poisons in insanity; suffice it to say that the evidence deals, on the one hand, with poisons introduced from without, and, on the other hand, with poisons formed within the body; that is, the problems presented are of two kinds, namely, those of exogenous and those of endogenous intoxication.

Again, some poisons exercise but a short tenure; that is, the intoxications which result from them are of short duration. In such instances, the organism successfully resists and disposes of the poisons speedily and promptly. The poisons are successively submitted to the defensive action of the gastro-intestinal juices, the defensive action of the liver and other glands, are variously changed chemically, and finally destroyed or eliminated; but these are not the poisons nor the processes which concern us here. The poisons with which we deal in mental diseases are those of long tenure, those which are not destroyed by the various glands and other defensive structures, and which consequently influence the metabolism of the organism for long periods of time, usually many months. Not only is this true of the poisons present in mental diseases which are essentially neuropathic and hereditary, such as the manic-depressive group and the group of the dementia praecox and paranoia, but also of those in which the poisoning is primarily of extraneous origin. Thus, when prolonged insanities ensue after acute infections, the poisons at work have their origin in a secondary disturbance of function of the liver, of the thyroid, of the kidney, of the adrenals and of other glands and tissues. The fact of such involvement is based on indisputable clinical and pathological evidence. Consequently a disorder of metabolism ensues which constitutes of itself an auto-intoxication, an auto-intoxication secondary to the original infection. The instance of alcoholic confusional insanity offers an even better illustration. Here the symptoms of mental disorder persist for many months—long after the patient has ceased to take alcohol. Clearly it cannot be the alcohol that is keeping up the symptoms; the persistence of the latter must be due to autogenous poisons, poisons which are the result of disturbance of function in various organs induced by the alcohol. This disturbance profoundly affects the substances normally elaborated and thrown into the circulation by the various glands and tissues. It would appear, then, that in all long continued forms of mental disease, no matter whether arising spontaneously from poisons bred within the body, or indirectly as a result of infection or poisoning from without, we have to deal with problems of auto-intoxication.

When we come to consider the nature of this intoxication, the facts at our disposal are extremely interesting. We know that these poisons are not mineral salts and also that they are not leukomains. Thus, there are no facts of chemistry to indicate that either the mineral salts or the leukomains are the toxic factors, and secondly, both of these groups of substances are readily eliminated—readily discharged from the organism—while the toxins of insanity are either eliminated very badly or not at all. Indeed, the position of the toxins of insanity is exactly like the position of the toxins of infection, for example, of typhoid fever. No amount of purging, diuresis, or sweating enables us to get rid of the toxins in typhoid fever. The latter are protein bodies, the injurious character of which nature combats by the process of immunization, a process long and tedious. The parallel between the behavior of infection and the course of mental diseases I have already instanced in the case of melancholia; and, indeed, in the manic-depressive group this parallel appears to be complete. It appears also to be complete in the secondary auto-intoxications resulting from the infections, and equally, though less clearly so, in the secondary auto-intoxications following poisons introduced from without. In all forms of secondary auto-intoxication, it may be safely claimed, the tendency is to a restitution of the normal condition.

In the heboid-paranoid group (dementia praecox and paranoia) the picture and the problems presented are much more complex. However, there is again the same unmistakable evidence of toxicity. There is the early period of depression which has a distinct wave-like course followed by a later period of expansion, also wave-like. Accompanying these phenomena there are those of a progressive deterioration which in the larger number of cases terminates in dementia. Some of the cases of dementia praecox, however, as is well known, pass through the cycle of depression and expansion, but instead of permanently deteriorating, terminate finally in a recovery. This recovery, however, is rarely complete; quite commonly it is approximate only. Usually, indeed, evidences of mental reduction are distinctly present. Cases of supposed recovery pass through a recurrence some years subsequently,

* Presidential Address, read at the annual meeting of the Philadelphia Psychiatric Society, Jan. 8, 1915.

terminating in a recovery less pronounced than the first, or perhaps with more marked impairment; or, it may be, that this or a subsequent recurrence terminates in a marked dementia. Paranoia and the definitely marked paranoid states we may dismiss by recalling that in them the element of toxicity is revealed by the prolonged wave-like periods of depression and expansion, periods which usually embrace years in duration, and which, as in dementia praecox, are accompanied by a progressive deterioration.

Evidently the difference between the course and termination of the manic-depressive group and the course and termination of the heboid-paranoid group depends on special factors present in the latter. For the sake of clearness, let us turn our attention, first, to the manic-depressive group. It would appear that here in the beginning of a wave, an antigen makes its appearance, and that this antigen is dominant until the fully developed stage is reached, when, after a time, antibodies become dominant and remain so until the normal condition is restored; in other words, until immunity is established. Unfortunately, in very many cases, the process does not end here, but antibodies continue to be formed until they are present in excess and then they in turn take on the character of antigens and a new cycle opposite in its phase is entered on and persists until immunization is again established. Such a view and no other explains the sequence of depressive and manic phases. As to the origin of the original antigens no definite knowledge at present obtains. That they are endogenous must be frankly admitted; that they are due to a disturbance of the hormones, of the internal secretions, using this term in its widest sense, is extremely probable. Finally, that this disturbance is one which permits of complete and full immunization, and therefore of a complete recovery—a recovery without impairment—is a conclusion in accord with clinical experience.

In the heboid-paranoid group (dementia praecox and paranoia), the problem, as already indicated, is somewhat different. We have again to do with affections that are, as in manic-depressive insanity, innately neuropathic, but they present this additional and important fact, namely, that they occur in organisms fundamentally and morphologically defective. The defects are sometimes gross and evident to a degree; at other times they are matters of legitimate inference. As a rule, it is not until the organism enters on the great transformations involved in the transition from childhood to puberty and adolescence, and in the still further change from adolescence to maturity, that the inherently defective and aberrant character of the organism becomes apparent. If the defects and aberrancies are great, symptoms may make their appearance early and give rise to the insanities of adolescence; if they be more recondite, the appearance of symptoms—i. e., the crass appearance of symptoms—may be delayed until later, then giving rise to the various paranoid states of the adult.

Let us turn our attention primarily to dementia praecox. The organism is in childhood able, perhaps, to meet the various demands of its existence. Its chemistry is as yet comparatively simple and it meets its physiologic necessities in a normal, or in an approximately normal, manner. As puberty is approached and entered upon, however, everything is changed. The sex glands, and with them all of the other glands of internal secretion and hormone producing structures generally, take on a new rôle. A new chemistry is entered on. The organism being badly constructed, this chemistry becomes aberrant and toxic. Some years ago, together with Dr. A. G. Ellis, I pointed out that the ductless glands in dementia praecox differed from normal ductless glands, among other things, more or less markedly in weight, and also, it seemed, in structure. Later, Fauser, by employing the method of Abderhalden, demonstrated the presence of ferments in the blood whose action can only be interpreted as a defense against the sex glands, and, in given instances, also against the thyroid and the cerebral cortex. Fauser's findings have been confirmed, with some variation of detail by a large number of other investigators, and the inference that in dementia praecox there is a profound disorder of the internal secretions involving the sex glands, the thyroid and in all probability other structures, is unavoidable. The studies of the rôle of the sex glands in dementia praecox by Parhon and his associates likewise admit of no other conclusion, and this is also true as to the involvement of the thyroid gland. It may now be stated without fear of contradiction that the theory of a disturbance—an imbalance and other change—of the internal secretions in dementia praecox has left the realm of speculation and has entered on that of established fact. In other words, as in manic-depressive insanity, the organism in dementia praecox is autotoxic, but this autotoxicity stands in a very different relation to immunity than it does in the manic-depressive group. The clinical history of dementia praecox, the fact that it presents a wave-like initial period of depression followed later by a wave-like period of expansion, suggests, of course, the interaction of antigens and antibodies similar to that which is indicated in manic-depressive insanity. As in the latter, the patient may pass through an attack of dementia praecox without presenting at the end any mental impairment; but this is, as I have already pointed out, distinctly the exception. The course of the affection in by far the larger number of cases is attended by a mental impairment that is progressive and finally pronounced; and yet we must recognize in its wave-like course—often clearly marked in the remissions and recoveries which every now and then ensue—the effort of the organism to overcome toxicity, to restore the balance of nutrition, to bring about immunization. That this immunization is difficult and often incomplete results probably from the inherently defective make-up of the organism. It would also appear that the antibodies, that is, the ferments which arise to defend the organism against the perverted and therefore toxic internal secretion of the sex glands, have unfortunately also a fermentative, a destructive action on the cerebral cortex. The disorder and imbalance of the internal secretions are thus clearly shown; first, in that the internal secretion of the sex glands acts as a foreign body and assumes the rôle of an antigen, and secondly, in that the antibody evolved has a toxic action on the brain and other structures. The point of practical importance for us, however, is that, in spite of her frequent failures, nature makes an effort—often a prolonged effort—to combat the auto-intoxication of the patient and to bring about immunization.

TREATMENT

With these preliminary considerations of the pathologic processes going on in our patients, let us turn our attention in the treatment or management of these disorders; first, to the indications present, and sec-

ondly, to the means at our command. The first indication is evidently to assist, if possible, in the production of antibodies. In the cycles of melancholia and mania, and in the secondary auto-intoxications of ectotoxic patients, the indications are very clear and the outlook most promising. What can we do here to assist nature? In what way can we favor the production of immune bodies? Evidently the resources of the organism are increased by adding to its substance, and the first indication is to give an abundance of nourishment, to practice full feeding just as we do in tuberculosis and in states of depressed nutrition generally. Full feeding does more than to add to the weight of the body and to encourage the repair of exhausted tissues; it distinctly favors the formation of lipoid substances, substances which we now know play a most important rôle both as antigens and antibodies. The rôle and significance of lipoids is well shown by an instance such as the following: A patient with a clear history of syphilis was submitted to the Wassermann test of the blood, but with a negative result. On further examination it was found that the patient was a little obese, a little overweight; in short, in a condition of hypernutrition. He was then placed for a time on an exclusive and limited diet of skimmed milk, together with the daily administration of salines. The blood being again examined after an interval of ten days or two weeks, the Wassermann reaction now proved to be positive. It was negative at first, probably because of an excess of lipoids.

The practical results of full feeding, and at times of massive feeding, are so well known as not to call for comment. That these results are due not only to a general improvement in nutrition, but also to the more liberal and readier formation of antibodies, is a most important fact for us to recognize.

The thought arises whether it would not be of value to administer lipoids—for instance, cholesterin or lecithin—to our patients directly to hasten, if possible, the production of immunity. It is probable, however, that lipoids introduced by the intestinal tract would be in some way changed either by the process of digestion or in their passage through the liver so as to lose their specific value. A parenteral introduction would therefore be indicated; but whether such an introduction could be successfully accomplished and, especially, in sufficient amount to have an appreciable effect, would be a matter for experiment.

An expedient practiced more especially by Pilcz in Vienna here deserves mention. It is a well known fact that an infectious process, such as erysipelas, sometimes leads in paresis to a remission. This is in keeping with the fact that an attack of typhoid fever or other acute infection occurring in the course of a melancholia, mania or it may be of some other psychosis, frequently leads to an abrupt termination, a cure, of the attack of insanity. Evidently this result is due to the fact that the infection stimulates the formation of antibodies. Pilcz, taking advantage of this fact, has inoculated cases of paresis with the toxins of erysipelas and has thus induced remissions.

The second indication of therapeutics in mental disease, one which is naturally and closely associated with hypernutrition, is rest. Rest, whether it be relative, partial or complete, is an indication as clear as that of full feeding. Indeed, rest is a veritable prerequisite of hypernutrition. Unfortunately it is rarely carried out in this country as radically as it is in Germany. Rest in bed is with us, as a rule, limited to the few patients who cannot get out of bed and is not applied as a special procedure to any large proportion of cases. Neurologists apply rest to their cases of neurasthenia, hysteria and allied functional affections and to the rather limited number of mental cases suitable for extramural care. That by this means recovery is greatly hastened, is a matter of such general experience as to be beyond question. It is rather remarkable that the Weir Mitchell method has been so little applied in the asylums of this country, while it has been applied, in principle at least, most extensively in Germany. Hypernutrition is in many cases impossible without it. We rest and full feed our cases of infectious diseases, for example, tuberculosis; why should we not rest and full feed the autotoxic, the—so-to-speak—self-infected patients whom we term the insane?

Thus far we have become acquainted with two tools of our trade, full feeding and rest. Full feeding has been long appreciated and understood by us, but this cannot be said of rest, that is, of radical rest in bed extending over months of time. That its value is inestimable Weir Mitchell long ago demonstrated and every neurologist can confirm. Its introduction into our asylums on a true hospital basis, with adequately trained nurses, is to be, I believe, one of the great achievements of the future.

We must now pause to turn our attention to a special and extremely important point both of etiology and therapeutics. Since the introduction of serologic studies, the Wassermann reaction has been found to be positive in a very large number of the insane. Not only has it been found to be positive in 100 per cent. of paretics, but also in a large proportion of defectives; not only in feebleminded and idiotic children, but notably also in cases of dementia praecox. In my personal experience, the Wassermann reaction has proved positive in dementia praecox with suggestive frequency, but attention should be especially directed to statistical studies such as have recently been published by Max A. Bahr in the Report of the Pathological Department of the Central Indiana Hospital for the Insane. Bahr found that the Wassermann reaction was present in 32.1 per cent. of his dementia praecox cases. Certainly such a finding cannot be a coincidence, but must have a profound significance. The importance of the result grows when we recall that in paresis and tabes the earlier writers claimed that only a percentage was due to syphilis while it is now admitted that *all* such cases are syphilitic in origin. It is probable that an improvement in methods will gradually add to the number of dementia praecox cases in which syphilis can be demonstrated. It is well known that children in whom the clinical evidences of inherited syphilis are indubitably present frequently yield a negative Wassermann. Probably this is due to the presence of an excess of lipoid substances; possibly to other and as yet unknown factors. At any rate, we should at present recognize that the study of a case of dementia praecox is not complete without a Wassermann examination, at least of the blood. If the latter fails, a luetin test should be made or possibly the sero-enzyme test according to the method of Abderhalden, as has recently been quite extensively done by Baeslack. Possibly these and other methods still to be devised, will prove that all cases of dementia praecox bear the evidences of a syphilitic inheritance. It is also a suggestive fact that cases of dementia praecox are—at least in my experience—

remarkably tolerant to mercurials. However this may be, the question that immediately concerns us is, Are the symptoms of dementia praecox to be regarded as the result of an active syphilitic process or are they to be regarded as due to the breaking down of an organism whose glandular and general organic evolution has become defective and aberrant, due to the presence, during the period of development, of the treponeme and its toxins? I fear that an increasing knowledge will reveal the latter to be the correct interpretation, and that antisyphilitic remedies will in dementia praecox accomplish but little.

The question further suggests itself, Do other infections have a similar effect on the embryo, the fetus, the developing child? While this is not impossible, little can be directly laid to the door of the acute febrile infections, the exanthemata, judging from our clinical histories. How is it in regard to tuberculosis? We can safely answer that the facts as to a tuberculous ancestry in cases of dementia praecox are inconclusive. Patients with dementia praecox, it is true, often betray an undoubted tendency to tuberculosis, a true anaphylaxis, but it is extremely probable that this anaphylaxis is not hereditary, but exists as a direct result of the imperfectly developed, the damaged, glands of internal secretion. This is doubtless the real reason for the lessened resistance to tuberculosis. On the other hand, tuberculosis in the ancestry does not seem to be a cause of dementia praecox.

It can hardly be doubted that the remarkable relation between syphilis and dementia praecox which is now coming to light and which seems to be becoming more clearly defined with increasing experience, will greatly influence our therapeutics. It would seem that in a given case we are not discharging our full duty unless specific treatment be not only instituted, but pushed until the Wassermann reaction becomes negative. Again, the question arises whether examinations should not be made of the cerebrospinal fluid and treatment with intraspinous injections of salvarsanized serum carried out as in the treatment of tabes and paresis. Certainly here are matters which merit our most thoughtful consideration.

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TREATMENT OF SPECIAL SYMPTOMS

Having considered various factors, general in their character, both of pathology and therapeutics, let us now turn our attention to the various measures at our command for the control of special symptoms. Among these is the bath, more especially the continued warm bath first used in Germany. That this continued warm bath is wonderfully efficacious in disturbed and excited cases is of course well known. It is a procedure especially adapted to active deliriums, to acute mania, to the excited periods of dementia praecox and to other active disturbances. As a rule, the patient who has been struggling soon becomes quieted by the procedure, and the effect persists for some hours or longer, after the patient has been taken from the bath. The question arises, How is this effect produced? The bath undoubtedly stimulates elimination by the skin, and it is not improbable that in disturbances normally of short duration, for example, alcoholic and other deliriums, the stimulation of the cutaneous elimination is the important factor at work. However, this is evidently not the case in other and long continued disturbances, for example, in true mania. No procedure as yet devised will cut short or abort an attack of mania; while the continued bath lessens the disturbance, it does not in any way lessen the duration of the manic wave. Similarly no method of bathing can lessen the duration of an attack of melancholia; melancholia for some reason when accompanied by disturbance, as in the agitated form, does not yield, as do other excited states, to the bath; indeed, the continued bath is not applicable to this affection. Further, as regards dementia praecox, while the bath lessens the excitement in disturbed cases, it cannot in any way influence the latter in duration. Finally, elimination cannot be the active factor in the quieting of mania and of the excited periods of dementia praecox, because the toxins present *cannot* be eliminated by the skin, no more—as has already been pointed out—than can the toxins of typhoid fever. As in typhoid fever, nature appears to combat the toxins of insanity by the slow and tedious process of immunization. In what manner, then, does the bath quiet the disturbed patients? It would appear that the warm water of itself has a calmative effect, a relaxing influence. In addition, the fact that the clothing has been removed and that the body half-floats in the water, lessens the tendency to resistance. Resistance is to a large extent reflex and is stimulated by that which it encounters. Possibly a contributing cause is also the fall of blood pressure in the peripheral vessels. However, this may be, the continued warm bath is also a form of restraint, and as such is the best, the most humane, the most physiologic form of restraint yet devised. Similar remarks are applicable to the warm pack. Here the warmth and the free sweating induced are likewise factors conducing to the relaxation and the calming of the patient, but the pack is in addition also a method of restraint. The word restraint has very unpleasant associations and another word such as "control" would be very much better. Years ago Dr. John B. Chapin suggested the word "disturbed" as more suitable and less offensive than such expressions as noisy, maniacal or excited when applied either to patients or to the wards of a hospital. The introduction of the word "disturbed" constituted a distinct advance in our terminology, and in the same way such a word as "control" would be much more acceptable than the old word restraint, and especially so as restraint in the old sense has practically disappeared from our asylums.

Other methods of hydrotherapy than the bath do not in the present paper call for consideration. There is one procedure, however, which deserves especial mention and which I believe in given instances to be of great value. I refer to the employment of hypodermoclysis in certain stuporous cases, as is practiced abroad, more especially by Pilcz of Vienna. Hypodermoclysis is obviously inapplicable to the stupor of catatonia or the stupor of melancholia; it is, however, undoubtedly applicable to the stupor of infection and exhaustion. Here it unquestionably stimulates elimination. I have on a number of occasions had the opportunity of employing this method in such cases with very satisfactory results. The procedure is unattended by risk and should, I believe, be more frequently practiced than it is. It has been carried out by Pilcz for years with marked success.

Another special indication in the treatment of mental cases is the production of sleep. There can be no doubt that this is one of the most important indications presented, and one that is often very imperfectly and half-heartedly met. Simple physiologic methods of inducing sleep, such as exercise, bathing, massage, the drip sheet, the taking of food, of hot milk, suggestion,

placebos, may all fail and indeed do fail in a large number of cases. If the patient secures some sleep, say four or five hours out of the twenty-four, we may be justified, other things equal, in withholding sedatives. If, however, the insomnia is very pronounced and persistent, grave danger both to the physical and the mental condition of the patient may ensue. The mental symptoms may become more pronounced and grave exhaustion may supervene. Indeed, patients have been known to die from the want of sleep and the accompanying exhaustion. Further, a long experience with the milder forms of mental disease such as are treated outside of institutions, as well as with the early periods of the more pronounced forms, has convinced me that the prompt correction of sleep disturbances is of the utmost importance. Many patients in whom this matter is neglected become rapidly and markedly worse. Others, again, in whom it receives prompt attention, are often spared a prolonged or a grave attack. As we have just seen, physiologic methods often fail to induce sleep; what then are we to do, especially when the patient's need is urgent?

Of late years a prejudice has grown up in the mind of physicians as to the use of sedatives. This prejudice is often so strong, especially in institutions, as to lead to an utterly inadequate use of these remedies or even to their entire exclusion. This prejudice, I am convinced, has its origin in the following causes: First, it is a reaction against a former somewhat too free use of these remedies; secondly, it has its origin in an insufficient and often mistaken knowledge of their mode of action, and in an exaggerated fear of their harmful effects; thirdly, the prejudice has been distinctly fostered by the attitude of the lay public, and especially the lay press. The word "dope," a slang word of the slums, has in large degree replaced such words as "medicine" and "remedy." The word "dope" is not only used by the laity and the lay press, but, I am sorry to add, even by some physicians. The latter have, in a degree, encouraged an unscientific attitude toward sedatives that has worked injury to their patients. Drug habits cannot and do not ensue if the physician exercises a reasonable precaution. This may in private practice entail some difficulty, not, however, in institutions, for here the administration of the remedy given is completely under the control of the physician. Physicians in private practice are, in my observation, habitually exceedingly careful in prescribing sedatives. Many physicians do not prescribe them at all unless the medicine is to be given by a nurse to whose hands the control of the remedy is thus confided. Whatever may be said as to these details, however, there cannot be any doubt as to the necessity or propriety of their use under given conditions. To withhold them under given conditions is equivalent to withholding nitrous oxid during the extraction of a tooth or denying a patient the sleep of ether during a surgical operation. Further, just as skill and judgment are required in the giving of an anesthetic, so are skill and judgment required in the administration of sedatives.

Time will not permit us to consider more than a few general principles. An ideal remedy would be one which would induce a sleep approximating the normal sleep and which would be followed neither by physical depression or other unpleasant symptoms. A large number of sedatives are at present at our disposal and many of them fulfil, approximately at least, the above conditions. Recently Dr. Richard Eager[1] of the Devon County Asylum, at Exminster, England, has carefully reviewed the use of sedatives. He points out the necessity of procuring sleep in certain cases, and that physiologic methods often fail completely. He points out especially the necessity of procuring sleep in cases with depression that threaten to be cases of melancholia, and further, that many of the hypnotics that are used induce sleep which is like the natural sleep and are not attended by depression or unphysiologic effects, and he insists that patients every now and then die from the exhaustion which the want of sleep induces. Some medicines are comparatively harmless; others have cumulative effects. Some do not conduce to the formation of drug habits; others still are liable to do so, especially if prescribed recklessly.

Of course all physicians recognize that sedatives should not, save exceptionally, be used over long periods of time. Their obvious application is to secure the immediate relief of a distressing insomnia. Frequently after such relief has been secured the patient continues sleeping without the medicine, or under the influence of a placebo. In given cases, should this not be the result, the remedy should, notwithstanding, be from time to time suspended, and, if later a sedative again becomes necessary, an entirely different one should be given.

Insomnia as met with both in the neurasthenic states and in the course of the various mental diseases, is unquestionably toxic in its origin and is but one of the many symptoms expressive of the toxicity from which the patient suffers. Compared with this toxicity the action of sedatives is evanescent. Their effect on the nervous tissue is merely transient and no harm can come from their judicious application; indeed, incalculable benefit often follows their use.

Further, another and most important point remains to be considered. When drugs are used habitually, tolerance to their use, as we all know, is sooner or later established and an increasing dose is required to produce an effect. The establishment of this tolerance doubtless depends on the formation of antibodies; in the case of some drugs, for example, morphin, the formation of an antitoxin has been definitely proved.[2] This fact has, however, an added significance. Justschenko and other writers point out that under the use of sedatives, lipoid substances are increased in amount. Justschenko declares that biochemical investigations have shown that under the influence of sedatives, for example, in severe melancholias, there is an increase of cholesterin in the blood, and cholesterin is, as is well known, a powerful antitoxic and antihemolytic body. In other words, sedatives directly stimulate the formation of antibodies, and there can be no doubt that in their judicious use we have, in given instances, a valuable means of aiding in the recovery of our patients.

I will not discuss the detailed properties of the various drugs nor their detailed application; this time forbids. The facts can be obtained in any text-book such as that of Kraepelin or in such admirable articles as that of Eager[1] already referred to. A few general statements, however, may not be amiss. Personally I never use—or very rarely—the alcohol group of sedatives, which includes, among other things, alcohol, paraldehyd, amylene hydrate, chloral hydrate, and

1. Eager, Richard: Jour. Mental Sc., July, 1914, p. 461.
2. Hirschlaff: Riedel's Berichte, 1904, p. 27, also Abstr., Jahresb. f. Neurol. u. Psychiat., 1904, p. 1228.

butyl chloral hydrate. Alcohol is sometimes given to promote sleep in persons suffering from neurasthenia; more especially in the form of beer or ale. The sleep so induced, however, is not apt to be prolonged, and besides the wisdom of prescribing alcoholic beverages for neurasthenics may well be questioned, and I have rarely so employed them. In the therapeutics of fully developed mental disease alcohol plays no rôle whatever. Of the other sedatives belonging to the alcohol group, all may be dismissed as no longer necessary since they have of recent years been displaced by other and more serviceable remedies. Perhaps an exception should be made in favor of paraldehyd. The latter has the great advantage of acting with the utmost promptness and certainty and at the same time of acting as a stimulant and not as a depressant. Its unpleasant odor and taste, however, make it difficult of administration save in alcoholic subjects, who take it very readily when it is suspended in whisky. It is therefore especially adapted to procuring a first sleep in alcoholic delirium and, because the sleep induced is short, some other and more slowly acting remedy may be given at the same time.

The sulphonal group presents several valuable sedatives; each of which has special advantages. Trional acts kindly and without depression or subsequent unpleasant after effects. Sulphonal acts slowly and is of special advantage when it is desired to procure a prolonged sleep. Like trional, its action is not accompanied by depression, but because it is slowly eliminated some hebetude may persist for some time after awakening following full doses. Tetronal closely resembles trional. Porphyruria, said to follow the too free administration of the sulphonal group, I have not met with.

The group of veronal, medinal, luminal and adalin appear to be especially valuable. Veronal in too free dose gives rise to a sleep that is too prolonged and is in some instances followed by heaviness and hebetude. Medinal (veronal sodium) is eliminated with great readiness; it acts very promptly, the sleep approximates the normal, there is no depression and no unpleasant after effect. Luminal, which is much lauded by Eager, I have little personal experience with, but it seems to be worthy of trial. Adalin appears to be an almost perfect hypnotic. The sleep induced is light and gentle and unattended by any concomitant or subsequent effects. It has the further advantage of being efficacious in relatively small dose, e. g., 5 grains; although not infrequently 15 grains are required.

The bromid group can be dismissed with the statement that they are not suitable for prolonged periods of time, and not as valuable, as hypnotics, as other remedies in our possession. Opium and its alkaloids also appear to have a very restricted application. Opium, however, is especially recommended by Eager in agitated melancholia. No drug habit follows its use in such cases, even when the administration is prolonged. Scopolamin is a drug of undoubted value. It is efficacious in producing quiet and sleep in even so small a dose as 1/400 grain, though commonly 1/200 or 1/100 of a grain are required. It has of late attracted renewed attention through its use in the production of the so-called "twilight sleep" in the obstetric clinic at Freiburg. Administered hypodermically together with morphin (1/100 of a grain of scopolamin and $\frac{1}{8}$ of a grain of morphin) rapid sedation and sleep follow. The sleep is not profound, but the patient can be handled and submitted to various procedures without the slightest difficulty. Genito-urinary surgeons have time and again had recourse to this method in operations on the prostate gland in cases in which ether or chloroform are inadmissible. Some German physicians give a struggling patient a hypodermic injection of scopolamin and morphin previous to placing him in the continuous warm bath. This method seems to be better than Kraepelin's plan of giving such patients a 30 grain dose of sulphonal. No depression and no unpleasant after effects follow the administration of the combination of scopolamin and morphin. It is remarkable also that the effect produced by small doses is far greater than when either drug is used alone in full dose. If scopolamin be used alone in large dose, it may be followed by dryness of the mucous membranes. Hallucinations and even delirium are also said to follow its too free use. This, I am convinced, is rare. Finally, it should be added that such a thing as a scopolamin habit is unknown.

Other modes of treatment than those considered in this address do not differ from those applicable to internal medicine and need not detain us here. Further, glandular extracts, which now play a limited rôle, may possibly play a more extensive rôle in the future. It is to be hoped, too, that the science of serology will in due course yield us antitoxins and perhaps also other remedies of the nature of salvarsan, a consideration of which I cannot in this essay even touch on. I have merely attempted to outline the facts, the wonderful possibilities and the great promise of the future.

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THE EMPLOYMENT OF BORIC ACID IN DISEASES OF THE SKIN

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Boric acid has a very extensive use in diseases of the skin, but it is almost always employed as an adjuvant. This subsidiary position, however, does not detract from its importance, but rather adds to it, as by its correct application in a multiplicity of ways the efficacy of the main therapeutic agent is often heightened. As, however, it is a subsidiary remedial agent, treatises on therapeutics and on skin diseases give it far less notice than its real usefulness demands.

Boric acid is a mild, non-irritating antiseptic. In fact, it is not only non-irritating; it is soothing and is used as a soothing lotion in the eye. In conformity with its real nature the powder feels smooth and unctuous. As in many instances an afflicted skin is irritated not only from an infection but also from the state of the system, the advantage of employing an antiseptic that is at the same time bland and soothing, is obvious, even if the antiseptic action is weak or only inhibitory.

Pure water, by increasing osmosis from the papillary layer of the skin, may act detrimentally, especially in superficial inflammations. When, however, boric acid is added to water it, like common salt, increases its tonicity and prevents this detrimental action. In this way a bland, soothing solution of approximately normal tension is secured, the action of which is especially beneficial when the skin is denuded of its horny epithelial covering and the papillary layer is exposed, as in catarrhal inflammations,

such as eczema, or superficial dermatitis, as "poison oak." In such cases if a moist dressing is for some reason desired, a solution of boric acid often answers admirably.

ACNE

An initiatory soaking with a hot boric acid solution is often of great benefit in the local treatment of acne. For this purpose it is desirable to apply the solution hot and to use a large quantity of it, so that the heat will be retained for a considerable time. Three heaping tablespoonfuls of boric acid powder are added to the usual quantity of water used in washing—about 3 quarts. This makes approximately a 3 per cent. solution. The patient should then sit, leaning over the bowl, and soak the face well with towels wrung out of the hot solution. As the solution grows cooler, more hot water may be added. It is often advantageous so to soak the face for ten or fifteen minutes. It softens the epithelium and acts as an excellent detergent, removing the grease and many of the micro-organisms, and decidedly increases the efficiency of a resorcin or sulphur application.

PYOGENIC INFECTION OF THE SKIN

Pyogenic infection of the skin is a convenient term to employ for a number of different affections mostly caused by either staphylococci or streptococci. In many of these the susceptibility of the individual plays an important, even a dominant part, and the constitutional condition must be met by measures appertaining to diet and general medicine. Topically, boric acid and its preparations are of great value, but frequently, as before mentioned, in a subsidiary or adjuvant sense.

FURUNCLE

Moist heat together with a non-irritating antiseptic are the topical therapeutic indications in the primary stage of active congestion in furuncles. These indications may be met by employing gauze dipped in hot saturated (4 per cent.) solution of boric acid, and enveloping with oil silk to retain the moisture and the heat. This is similar to a poultice, but is not so good, as it is not so bland and does not retain the heat so well; it, however, is often sufficient, and is easier to apply. An admirable poultice for this purpose is made by mixing boric acid powder with starch paste. The preparation of this will be taken up later.

There are some special kinds of furuncles that deserve more detailed mention.

Furuncle of the edge of the eyelid, hordeolum or stye, is one of the most exasperating, painful, and it may be one of the most persistent of troubles. It begins as a little red point on the ciliary border, and in about three days a white center shows in the red swelling. It opens, a little core is expelled, and healing takes place. In about a week, at another part of the edge of the lid, another red point appears that goes through the same stages. At times, instead of styes coming singly, a number appear bordering both lids, and then the affection is most distressing indeed. Long ago Hardaway[1] pointed out that styes may be due to infection from the scalp, and that when seborrhea capitis is present it should also be treated. Furthermore, many of the patients, suffering from styes, have blepharitis ciliaris, which is frequently an expression of the same seborrheic habit.

1. Hardaway and Grindon: Cutaneous Therapeutics, Philadelphia, Lea and Febiger, 1907, p. 38.

In the treatment of styes I have usually come out fortunately by ordering persistent bathing and soaking for half an hour twice a day with warm saturated solution of boric acid, and after each soaking to rub in a salve of 1 per cent. red mercuric oxid in vaselin.

Suppurative folliculitis of the vibrissae of the nares is another pyogenic affection in which boric acid may be employed with advantage. This folliculitis is a most tantalizing affection, and is often combined with cracking of the mucous membrane at the anterior angle of the nares, constituting one of the causes of red nose. These lesions may also plague in another way, by furnishing a convenient entrance for the streptococci of erysipelas. An efficient manner of treating this folliculitis is to set before the patient a tin cup of saturated solution of boric acid, kept hot by placing it over the flame of a spirit lamp. The patient takes pledgets of absorbent cotton, dips them in the hot solution, and pushes them into the affected nostril, repeating this during ten or fifteen minutes till the tissues are well softened, and the crusts softened and loosened. Calomel, 12 per cent., or xeroform, 12 per cent. in vaselin, is then well rubbed in. This procedure may be repeated two or three times a day. Care must be taken both to soak thoroughly and anoint the fossae behind the nose tip, as these hollows are a favorite residence for germs in this affection. Epilation may or may not be necessary.

IMPETIGO CONTAGIOSA

Streptococcic infection of the skin when it appears as impetigo contagiosa frequently justifies its name of the impetuous disease, or the quick striker. Like all the streptococci, those that cause impetigo contagiosa love fluid, which they cause to pour out as serum from the papillary blood vessels. This sticky serum forms heavy crusts that constitute an excellent protection for the underlying anaerobic bacteria. One of the chief therapeutic indications is to remove these crusts without doing any damage to the inflamed skin. This may often be best accomplished by applying a boric acid starch poultice. The making of this poultice is a simple matter, but it is often the simple matters that are the most neglected. It is made in the following manner:

Take ordinary, common, lump, laundry starch and pulverize it. This pulverization is to be done before measuring. Dissolve one slightly heaping tablespoonful of the pulverized starch in two tablespoonfuls of cold water. Add to this one coffee cupful of boiling water, stirring rapidly until the mixture is a thick paste. To this paste add a tablespoonful of boric acid, free from lumps, and stir well until thoroughly mixed. Fold the warm jelly between layers of thin muslin or cheesecloth, and apply as hot as can be borne.

A good poultice should not be too thin or it will dry, nor too bulky, or it will run; it should be slightly less than a finger thick. In order to prevent the borders drying and sticking to the surface, they may be greased with vaselin, oil or zinc oxid ointment.

This poultice is not gummy like a linseed poultice, is cleaner looking and retains heat just as well. Besides the foregoing use, such a poultice has a multitude of applications, sometimes being employed hot, sometimes cold, as pointed out by Sabouraud. Sabouraud rightly objects to the disrepute into which, of late years, poultices have fallen, and rightly asserts that many of the objections emanate from men who

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slavishly follow a popular cry.[2] It is true that antiseptics, among those who are imperfectly grounded in bacteriology, assume many fantastic and doctrinal forms, and that there is no scoffer nearly so sneering as the one with imperfect knowledge.

When, by means of this poultice, the crusts are softened and loosened, they may be gently removed. This removal is often best accomplished by rubbing in a salve containing an appropriate antiseptic, such as ammoniated mercury. The following ointment is an excellent one for the purpose:

		gm.	
℞	Ung. hydrargyri ammoniati..	15	ʒ ½
	Ung. zinci oxidi.....	30	ʒ i

M. Use twice a day both to clean and dress the affected surface.

The real efficient antiseptic in the above is the ammoniated mercury, a remedy familiar to every skin clinic in which naturally streptococcic infections are among the daily visitors. The 10 per cent. ointment of the Pharmacopeia, however, is too stimulating, and the zinc oxid ointment both dilutes it and modifies its asperity.

As a general lotion for more widespread use in very scattered pyogenic infection of the skin, a saturated solution of boric acid in dilute alcohol serves admirably. It is harmless, it is clean and does not stain, and is not disagreeable in either appearance or odor, and because of the alcohol cutting the fat of the cutaneous surface, both the alcohol and the boric acid are permitted to act effectively as antiseptics.

PERLECHE

Perleche is another streptococcic infection, with a name that should be a delight to a philologist, as it is so closely connected with the etiology of the disease. It is derived from the French *lecher*, to lick; in fact, our word lick, the German *lecken*, is the French *lecher*, therefore it really is the lick disease. It is an infection in the corners of the mouth in infants. They constantly lick it and therefore keep it moist and in a favorable condition for the further growth and residence of these moisture loving micro-organisms. The affection may spread down on the outer surface of the lip and supramental fossa, where the little pink washrag of a tongue follows and entertains it. The persistent foci, however, remain in the corners of the mouth, where there is cracking and a characteristic grey veil-like covering. Pledgets of cotton wet in warm boric acid solution should first be industriously sopped into the corners of the mouth, and, if possible, drawn across the corners saddlewise and left there. After this is thoroughly done, the ointment composed of the ointments of ammoniated mercury and zinc oxid, previously recommended, is rubbed in.

PARONYCHIA

Another pyogenic infection due, in at any rate the majority of instances, primarily to streptococcic infection followed by staphylococcic fouling, is the painful affection in the neighborhood of the nails called runaround, paronychia or felon. When the affection has gone to the length of suppuration, it must be lanced, but before this occurs the process may be aborted by appropriate treatment. Both as an abortive measure, and as an antiphlogistic antiseptic measure, a dressing of a combination of boric acid and liquor alumini acetici may do excellent service. A lotion is made of:

		gm. or c.c.	
℞	Liq. alumini acetici.....	30	ʒ i
	Acid boric sol. sat.....	300	fl ʒ x

M. Employ warm to bathe the finger, and also as a wet dressing.

Gauze soaked in this solution is wrapped about the finger, and then an amply fitting rubber finger-stall is drawn over it and retained by a not too tight bandage.

Liquor alumini acetici is among the best of the mild antiseptics, and is gradually coming into favor in surgical clinics.[3] It must be carefully prepared, and should be diluted about ten times. The water employed in its dilution is not an indifferent matter, as that containing carbonates throws down a heavy gelatinous precipitate of aluminum hydroxid. As the foregoing prescription is put up by a druggist, and with distilled water, this mischance is avoided.

ULCUS CRURIS

Ulcus cruris is almost always a streptococcic infection on a leg in which the resistance is lowered by circulatory disturbances due to varicose veins. These circulatory disturbances not alone lower the resistance, but they increase the susceptibility to streptococcic attack by increasing the amount of fluid in the tissue. As has been before mentioned, the streptococcus is an ardent lover of fluids. These are not the only causative factors in ulcus cruris, which has a most complicated etiology, but the mention of the edematous condition of the tissues and the presence of streptococcic infection serve to elucidate why these ulcers are so irritable, so watery, so heavily crusted, and why they have, when neglected, such a bad, penetrating odor. The irritable condition of the tissues precludes the employment of all strong antiseptics. Nothing will clear off the crusts, deodorize the lesions and inhibit the infection so well as a boric acid starch poultice. This naturally does not constitute the alpha and omega of treatment in this complicated and highly interesting disease condition, but it does form a most welcome help in some of its incident conditions.

Used either alone or combined with other powders, boric acid is very valuable in many discharging diseases of the skin. An excellent powder is made of equal parts of boric acid and talc, or of equal parts of starch, zinc oxid and boric acid.

The boric acid ointment of the Pharmacopeia contains about 8 per cent. of boric acid, while Lister's ointment is much stronger—about 16 per cent. Boric acid ointment is an excellent non-irritating preparation with a multitude of uses. It is an ointment that, more generally than any other, is well prepared, and this is a point of importance when the druggist who is to put up a prescription is not known, as ointments are often wretchedly made. In seborrheic conditions this ointment will sometimes agree when those more usually employed fail.

The presence of boric acid in a great number of proprietary remedies and pharmacopeial compounds is also a proof of its usefulness as a topical application.

It is well, occasionally, to review what help we may receive from the humbler members of our Pharmacopeia, as they sometimes may aid us when the more

2. Sabouraud, R.: Le Cataplasme de fecule en dermatologie, Les Entretiens Dermatologiques, 1913, p. 415.

3. Meyer and Gottlieb, in their admirable book on therapeutics, Die experimentelle Pharmakologie, Berlin, 1911, p. 464, mention aluminium acetate (liquor alumini acetici, essigsaure Tonerde), saying that it stands on the borderline between astringents and antiseptics, and that it is coming more into use as a mild antiseptic in wounds.

dramatic ones fail. The practice of medicine is the study of life, and life is composed of little things, and these little things we cannot despise. It was a favorite saying with the late Professor von Leyden: "For the patient there are no small things."

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THE SIGNIFICANCE OF TUBERCLE BACILLI IN THE URINE *

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The significance of tubercle bacilli in the urine may or may not be grave. I shall consider it first, from the point of view of discovery of tubercle bacilli in the routine examination of the urine of tuberculous patients; and, secondly, from that of finding tubercle bacilli in the urine of a patient with symptoms, more or less pronounced, referable to the urogenital tract.

ACID-FAST BACILLI

Before discussing these points, however, I would like to say a word about the acid-fast organisms and their differentiation from tubercle bacilli.

The cold blooded tubercle bacilli, while possibly slightly infectious for man, and while it is possible that they might be excreted through the kidneys when injected into the body or circulation in large quantities, can in most patients be disregarded. Lepra bacilli and acid-fast streptothrices (actinomycosis) play here a small part also. The milk and butter bacilli and the timothy hay bacilli may possibly be excreted through the urine, for the work of Calmette and Ravenel has shown that in dogs tubercle bacilli in a fatty emulsion are readily absorbed from the intestine and pass through the thoracic duct into the blood. These organisms, therefore, must be borne in mind, but their occurrence in vesical urine must be rare. In all staining methods the acid-fast organisms which can occur in distilled water must be excluded.

SMEGMA BACILLI

Of all organisms, however, the most important for us in relation to differential diagnosis is the smegma bacillus. Careful work has shown that no staining methods differentiate tubercle and smegma bacilli. Recent work further reveals the fact that smegma bacilli are difficult to cultivate directly from the patient. In fact, some hold that real smegma bacilli cannot be cultivated; that smegma contains two varieties of acid-fast organisms, only one of which can be grown. It is of some importance to know the frequency with which smegma bacilli occur in nature. Brereton and Smith[1] in 126 insane or uncleanly patients found red staining bacilli in 85 (67.5 per cent.) after decolorization by 25 per cent. sulphuric acid, while they occurred in only 19 (22 per cent.) of these patients after methylene blue had been used as a counterstain after decolorization. They were present in 13 per cent. when decolorized by acid alcohol or Labarraque's solution (in 16 (13 per cent.) of 119 when decolorized by acid alcohol and in 16 (13 per cent.) of 117 when decolorized by Labarraque's solution). In a second series of 20 men of ordinary cleanly habits, smegma bacilli were present in 13 (65 per cent.) after the use of sulphuric acid only (25 per cent.), and 2 (10 per cent.) after counterstaining.

Smears from the anterior urethra (fossa navicularis) were made by Young and Churchman[2] in 24 patients and smegma bacilli found in 11 (46 per cent.), while of 6 patients, smegma bacilli were found in the urine of 5. The urine in the bladder at necropsy, or smears from the bladder wall, were negative in 50 cases. The posterior urethra was negative for smegma bacilli in the 6 cases examined. This work led Young and Churchman[2] to advise thorough cleansing of the penis and rinsing with large quantities of water, as well as careful irrigation of the anterior urethra. The urine they say should be passed in three glasses and only the third used in examination for tubercle bacilli. This technic, they believe, will fully exclude all smegma bacilli from the urine and acid- and alcohol-fast bacilli present can be considered tubercle bacilli. In women, catheterization of the ureters must be practiced.

The differentiation of tubercle and smegma bacilli by methods of cultivation are said to be very unsatisfactory on account of the difficulty in getting smegma bacilli to grow. Brereton and Smith question whether the true smegma bacilli have ever been successfully cultivated. Mr. Petroff and I have found out that the so-called smegma bacilli, which grow luxuriantly, cannot resist treatment with normal sodium hydroxid (4 per cent.) solution for fifteen minutes, which procedure affects tubercle bacilli little if at all. Of course all differential methods, dependent on cultivation of an organism, possess the inherent weakness that the organism may be dead. This argument was advanced as the explanation of the inability of all observers to grow tubercle bacilli directly from the feces, or, indeed, to infect guinea pigs with the tubercle bacilli contained in the feces. Since both these ends have been accomplished, the foundation for such arguments has been materially weakened. Of course until a satisfactory method for cultivating the true smegma bacilli has been discovered, it is useless to base any diagnostic methods on a procedure which depends on their growth; but Petroff's new "egg-meat-juice-gentian-violet" medium will enable us to grow tubercle bacilli readily. If at the end of ten days or two weeks no growth takes place in a tube which has been inoculated with a sediment containing acid-fast bacilli, we are almost justified in concluding that they are not tubercle bacilli.

VALUE OF STERILE CULTURES

In 40 out of 42 cases of urogenital tuberculosis Suter[3] obtained no growth on inoculation into the usual mediums of the carefully collected urine. The presence of symptoms of cystitis and the absence of growth on inoculation of catheterized urine into the ordinary mediums is, he holds, evidence of renal tuberculosis. Albarran looks on the absence of microorganisms in a "purulent" urine in the same light.

FREQUENCY OF EXAMINATIONS AND COLLECTION OF SPECIMENS

He who would base an opinion on the presence or absence of tubercle bacilli in sputum on the examination of one specimen would be ridiculed. After thinking it over we would all, I am sure, come to the same conclusion in regard to the presence of tubercle bacilli

* Opening of a discussion at the mid-winter meeting of the American Sanatorium Association, Dec. 15, 1914.

1. Brereton and Smith: Am. Jour. Med. Sc., 1914, cxlviii, 267.
2. Young and Churchman: Am. Jour. Med. Sc., 1905, cxxx, 52.
3. Suter: Baumgarten's Jahresb., 1903, xix, 466.

in the urine. That they may occur for a while and then disappear entirely, cannot be denied. The occurrence of so-called "showers" of tubercle bacilli is common knowledge. Even good laboratory men, however, do not always bear this in mind and do not hesitate, in some instances, to deny the presence of tubercle bacilli in the urine after one or two examinations. The same care should be exercised in collecting specimens of urine as of sputum. The patient should be warned that whenever any unusual symptoms supervene he should submit two or three specimens of urine. Such symptoms embrace increased diurnal frequency of micturition, cloudiness of the urine when it is passed, and any unusual sensation connected with the genito-urinary system.

PRACTICAL METHOD OF EXAMINATION OF THE URINE

The most satisfactory method of finding tubercle bacilli in urine is probably that used by Mr. Petroff at the Adirondack Cottage Sanitarium, as follows:

Add to the urine to be examined, which has been acidified with 30 per cent. acetic acid, 2 per cent. of its volume of a 5 per cent. solution of tannic acid. This urine is then put in the ice-chest for twenty-four hours. The precipitate can then be centrifugalized, redissolved with dilute acetic acid, centrifugalized and the sediment placed on slides and stained, or the first precipitate treated with normal sodium hydroxid solution and cultivated.

CONTROL STAINING

A simple point that may aid in diagnosis might be mentioned. The bacilli to be stained may be placed on the same slide with a few typical tubercle bacilli which have been immersed in urine and the two smears subjected to the same methods of decolorization. If the questionable bacilli are decolorized when the control tubercle bacilli still retain the red stain, it is presumptive evidence that they are not tubercle bacilli.

ANIMAL INOCULATION

Many contend, however, and I must confess to a similar tendency hitherto myself, that when acid- and alcohol-fast bacilli are found in urine the sediment from large quantities of freshly collected urine should be inoculated subcutaneously into several guinea pigs, which should become tuberculous before a diagnosis of tuberculosis is made.

I saw several years ago a young married man, about 28, who while perfectly well, before the consummation of marriage, for eugenic purposes consulted a physician. His urine contained albumin and a specialist found tubercle bacilli in the urine from the right kidney. A second specialist could not make such a diagnosis, but suspected it, and referred the patient to me for general treatment. His lungs were negative. We centrifugalized a large quantity of urine (not obtained by catheter) and found a great number of acid- and alcohol-fast bacilli, like typical tubercle bacilli. Inoculation of this sediment into guinea pigs produced no tuberculosis. He gained in every way and returned to work, but about six months later developed a tuberculous epididymitis and the epididymis was removed. I question now whether his right kidney is not tuberculous.

A. DISCOVERY OF TUBERCLE BACILLI IN THE URINE ON ROUTINE EXAMINATION

The discovery of tubercle bacilli in the urine of an individual without any symptoms referable to the genito-urinary tract suggests much of interest. For tubercle bacilli to be present in the uncontaminated urine they must have, in some manner, gained entrance into the body. It is to-day well established that they can enter the body and leave no discoverable lesion at the portal of entry. It would be but a step farther to go to picture that, if this can occur, their exit from the body without discoverable lesion can also take place. Indeed, this would seem to occur through the liver, for Calmette has found tubercle bacilli in the bile of experimental animals, which had, as far as I recall, no discoverable lesion in the liver or gall tract. If the liver permits the transmigration of tubercle bacilli, it would appear from analogy that the kidney might also. That this can take place in man appears now to be settled. A case has been reported by Rist and Kindberg[4] in which a patient with asystole of aortic origin died of an intercurrent erysipelas. No tubercle bacilli had been found in the sputum, even after animal inoculation, but on two separate occasions injection of urine had caused tuberculosis in guinea pigs. A necropsy revealed an apical tuberculous scar in one lung, but in no other organ could any tuberculosis be found. Many fragments of organs, including the kidneys, were introduced into guinea pigs without producing tuberculosis. The explanation advanced by the authors is that the tubercle bacillemia was taken care of by the kidneys, which excreted or permitted the tubercle bacilli to pass. Kuester had a somewhat similar case in which occurred convulsions, hemorrhage from the urinary organs and tubercle bacilli in the urine, while both kidneys were found free from tubercle.

PATHOLOGIC CLASSIFICATION OF TUBERCULOUS RENAL INFECTION

At this point I might mention the pathological classification of Jousset.[5] He divides tuberculous renal infection into three groups:

1. Those with specific pathologic changes:
   a. Massive tubercles (cheesy). (Surgical.)
   b. Miliary tubercles (this includes the vast majority found at necropsies).
2. Those with non-specific pathologic changes varying from hyperemia to interstitial changes.
3. Those without pathologic changes. No variations from normal or a very slight epithelial lesion.

While speaking of pathology, I might say that experimental work all tends to show that in the genito-urinary tract the infection is descending and not ascending. A few clinical cases suggest, however, that ascending renal tuberculosis can occur when tuberculous ulceration takes place about the mouth of the ureter and the urine is partly or completely dammed back.

Considerable work has been done in studying the urine of patients with pulmonary tuberculosis, to discover whether or not it contained tubercle bacilli. From what has been said it is readily seen that the only results to which no objections can be offered are those in which animal inoculation has been practiced.

In nine of eighteen cases of severe pulmonary tuberculosis, Foulerton and Hillier[6] found tubercle bacilli in the urine by inoculation into guinea pigs, but not by microscopic examination. Six of these nine died later and the kidneys showed no signs of tuberculosis.

4. Rist and Kindberg: Presse méd., 1914, p. 177.
5. Jousset: Baumgarten's Jahresb., 1904, p. 646.
6. Foulerton and Hillier: Brit. Med. Jour., 1901, ii, 774.

Bertier[7] believes that when the tuberculosis is at a standstill, tubercle bacilli occur less frequently in the urine, but agrees with the finding of Foulerton and Hillier that bacilluria can occur without renal changes.

Cunningham[8] found six out of sixty-six patients with pulmonary tuberculosis to yield urine containing tubercle bacilli on animal inoculation. Bernstein,[9] repeating this work, found ten positive cases in 100 patients with pulmonary tuberculosis without symptoms referable to the urinary tract. Six of these patients had no albuminuria and three no cystoscopic changes, but in three the urine contained pus cells.

In 104 collected cases, thirty-seven among children, positive results were obtained on inoculation in eleven, or 10 per cent. One or more of these, however, may have had renal tuberculosis. In 52 cases at the Adirondack Cottage Sanitarium positive results were noted in two instances, both ill patients, one of whom has recovered and one has died. The patient who recovered showed urinary symptoms of some renal disease, while the patient that died showed none. None of these patients at the Adirondack Cottage Sanitarium presented any symptoms referable to the genito-urinary tract.

As far as I can determine, the presence of tubercle bacilli in the urine of these patients who present no discoverable pathologic changes in the genito-urinary tract does not necessarily signify clinical renal tuberculosis, for tubercle bacilli may pass into the bladder without injury to the kidney.

B. TUBERCLE BACILLI IN THE URINE OF PATIENTS WITH SYMPTOMS REFERABLE TO THE UROGENITAL TRACT

The presence of symptoms referable to the urogenital tract gives a very different significance to discovery of tubercle bacilli in the urine. Without question tubercle bacilli in the urine come most frequently from the kidney, and for this reason, as well as for the fact that vesical tuberculosis is most frequently secondary to renal tuberculosis, I shall at first speak of renal tuberculosis.

FREQUENCY OF RENAL AND PULMONARY TUBERCULOSIS

Renal tuberculosis is not rare in patients with pulmonary tuberculosis. Fischer[10] found at necropsy histologic tuberculous changes in the kidney of 50 (67 per cent.) of 74 cases of chronic pulmonary tuberculosis. Walsh[11] found tuberculous changes in the kidney of 35 (58 per cent.) of 60 patients dying of pulmonary tuberculosis. Posner[12] discovered 25 per cent. of renal tuberculosis in 519 necropsies on subjects with pulmonary tuberculosis, while Israel[13] noted that 50 per cent. of his necropsies on renal tuberculosis revealed pulmonary tuberculosis as well, and Kelynack 70 per cent. When it is considered that urogenital tuberculosis is practically always hematogenous and secondary to some other tuberculous foci, however slight, and that the vast majority of the so-called "primary cases" are only those in which the secondary overshadows the primary focus of infection, such figures are not astonishing.

7. Bertier: Quoted in Tuberculosis, Berlin, 1914, xiii, 313.
8. Cunningham: Boston Med. and Surg. Jour., 1911, clxv, 827.
9. Bernstein: New York State Jour. Med., 1914, xiv, 88.
10. Fischer: Zeigler's Beitr., 1909, xlvii, 372.
11. Walsh: Report Phipps' Institute, 1904-5, ii, 151.
12. Posner: Ztschr. f. Tuberk., 1901, ii, 139.
13. Israel: Quoted in Cornet, Die Tuberkulose, 1907, p. 1211.

DO TUBERCLE BACILLI OCCUR IN THE URINE BEFORE SYMPTOMS ARISE?

Whether tubercle bacilli occur in the urine before symptoms develop has not been proved, but from the foregoing statements I believe that it is not improbable that tubercle bacilli may exist at infrequent intervals in the urine long before any symptoms occur. This, of course, raises the question of the significance of the presence of tubercle bacilli in the urine without symptoms; and while they can occur without renal changes, I believe it is far safer for us, after a negative roentgenogram, to keep the patient under observation for several years.

THE TIME OF DIAGNOSIS

The symptoms that suggest renal involvement in a person hitherto healthy are usually rather well marked when he consults a physician. Of 212 patients at the Mayo Clinic, 71 per cent. had a duration over one year, 17 per cent. over five years and 6 per cent. over ten years. Only 10 per cent. applied with a duration of disease of less than six months (Braasch[14]). When a patient with tuberculosis develops albuminuria, renal tuberculosis should be thought of at once, and it has long been our custom at the Adirondack Cottage Sanitarium to search the urine of such patients for tubercle bacilli and to inoculate the sediment into a guinea pig. The general symptoms of tuberculous poisoning can in these cases be easily attributed to the tuberculous condition present elsewhere. It must not be forgotten that renal tuberculosis is nearly always a hematogenous infection, secondary to a more or less veiled tuberculosis in another part of the body. The diurnal irritability may in such patients be explained by the increased amounts of milk and water taken. The blood pressure is not raised.

The history of a case in which I was at fault may possibly be of assistance to others:

> The patient, who was very nervous, had been under my care for some years for an extensive pulmonary tuberculosis. He had complained at different times of slight malaise and of discomfort or pain in the lumbar region. His urine, previously normal, first showed a trace of albumin and a few granular casts in June, 1911. In August there was pus and the reaction was acid. This continued, and two or more inoculations were made into guinea pigs, which developed no tuberculosis. In February, 1912, he complained of increased expectoration, some premature systoles, but said he had had no symptoms from his kidneys. In April, 1912, another guinea pig was inoculated and developed tuberculosis. Tubercle bacilli, which had not been found before, then appeared in the urine and were found by catheterization to come from the right kidney. The left kidney was normal. Cystoscopy showed a slightly affected bladder, with some congestion at the right ureteral orifice. The kidney was removed in June, 1912, and found extensively involved, as well as the ureter. The wound was closed, but broke down and healed finally about December, 1913.

This case is a good example of what may occur when one waits for tubercle bacilli to appear in the urine. Roentgen-ray picture might have been of considerable assistance.

THE URINE IN RENAL TUBERCULOSIS

Pyuria, with an acid urine, hematuria, pain referred to the kidney, a nodular enlargement of the epididymus or prostate, are all of great importance in diagnosis and should lead to the repeated examination of

14. Braasch: Interstate Med. Jour., 1912, xix, 863.

the urine for tubercle bacilli. Here, however, as in the sputum examination, a positive finding far outweighs a negative. I have spoken of the "showers" of tubercle bacilli which may occur at infrequent intervals in the urine. On the other hand, we must not forget that involvement of the ureter may lead to its closure, a procedure which performs, so to speak, autonephrectomy. A tuberculous kidney may, therefore, have no opening into the bladder and the tubercle bacilli are dammed up.

A CASE OF AUTONEPHRECTOMY

A case reported by Renton[15] is of considerable interest in this connection. A man, aged 27, giving a history of marked vesical symptoms for three or four years, very ill and thin, without any recollection of pain in the renal regions, showed on cystoscopic examination a greatly retracted bladder, lined with a white caseous-looking deposit. No tubercle bacilli were found in the urine. Ten days later he died. On one side autonephrectomy had taken place; on the other side the kidney was tuberculous and largely destroyed. The bladder was completely covered by caseous tubercle bacilli. To think that a good man could find no tubercle bacilli in the urine of such a patient sounds a note of warning for us all. But some excellent men have failed to find tubercle bacilli in 50 per cent. of their cases, and others have discovered them only in 20 to 40 per cent. Tubercle bacilli may occur, however, in the urine only at rare intervals for several years, and when constantly present would indicate to me that if they come from the kidney a rather extensive ulceration has occurred.

THE URINE IN ACUTE MILIARY TUBERCULOSIS

It is of interest to note the occurrence of tubercle bacilli in the urine in cases of acute general miliary tuberculosis. Churchman[16] apparently believes that tubercle bacilli occur in the urine of nearly every case of this type, while they may be difficult to find in the sputum.

RADIOGRAPHY

Radiography[17] is probably of value in diagnosis only when the renal tuberculosis has reached an advanced stage, and in one of the cases just mentioned might have been of great value.

SPECIAL EXAMINATIONS

When in the urine of a patient who has diurnal irritability, slight albuminuria, slight pyuria, lumbar pain, with or without hematuria or nodular enlargements in the epididymus or prostate, tubercle bacilli are found, a diagnosis of tuberculosis of the genito-urinary tract should be made and an endeavor to exclude renal tuberculosis attempted. A careful manual examination of the epididymus, spermatic cord, prostate, seminal vesicle and kidneys is called for. A cystoscopic examination should be performed by an expert. Buerger, of New York, has recently found that a slight edematous puffiness at the orifice of a ureter is an indication of renal tuberculosis on that side, and has shown that the edematous tissue may contain tubercles. Catheterization of the ureters will show whether one or both kidneys are involved. It is usually unilateral at first. Functional tests will prove the efficiency of the affected and unaffected kidneys. It must not be overlooked that the enlarged kidney may be the one that functions.

TREATMENT

Before closing I might add a word about treatment. I have long advocated for all active, and for any tuberculous process for a time, functional rest. I believe it is impossible to give a tuberculous kidney functional rest. In the majority of instances I believe this seriously affects the chances of cure, though when a slight tuberculous ulceration occurs in the pelvis of the kidney, which I believe is rare, I can see no reason why it might not heal. For this reason it seems to me that, *theoretically*, renal tuberculosis of any degree should be treated by nephrectomy. Only twenty-five years ago such advice was violently opposed, but to-day conservative surgical opinion is in favor of this treatment and many believe that tuberculin, the hygienic-dietetic treatment, or, in fact, treatment by any medical means, has little to offer, as extension of the disease to other parts may take place during such treatment. After nephrectomy, however, tuberculin is of great value.

COMPARISON OF MEDICAL AND SURGICAL TREATMENT

The report of Wildbolz[18] (1912) on 316 cases of renal tuberculosis treated by non-surgical methods is enlightening. Of these patients 70 per cent. died within five years and only 10 per cent. are alive more than five years after the commencement of the disease. Only one case was well in every respect. Compare this with the results at the Mayo Clinic where nephrectomy was practiced. (Braasch.) The operative mortality was 2.9 per cent. of 203 cases. Excluding recent and untraced cases, we have 142 to be considered of which 98 or 69 per cent. were well or greatly improved more than one year after operation, while 13 per cent. had no relief from the vesical symptoms. When it is considered that renal tuberculosis in nearly 90 per cent. of all cases attacks one kidney first, the danger of delay in operation is evident.

SPONTANEOUS HEALING

Spontaneous healing has been said to occur but when Albarran challenged the French surgical society to produce one such case, none was forthcoming.

Elkhorn[19] has reported a case of so-called spontaneous cure. In 1901 the patient had pronounced symptoms of renal and vesical tuberculosis, with numerous tubercle bacilli in the urine. In 1907 he was apparently perfectly well, but in 1909 while in the hospital for treatment for worms, with a normal urine, cystoscopy showed a pyonephrosis. At operation the kidney was found totally destroyed and the pus-like material produced no tuberculosis in guinea pigs. I have gone into the details of this case to illustrate how "spontaneous healing" usually occurs in renal tuberculosis. The kidney is destroyed, becomes a pultaceous mass, the ureter is closed and the symptoms may, as in this case, disappear. I believe that tubercle bacilli were exceedingly rare in the kidney sack, or indeed may have entirely disappeared.

The bladder is involved in 80 per cent. of all cases, but at first the lesion may be slight or the symptoms partly reflex. After nephrectomy the vesical disease

15. Renton: Brit. Med. Jour., April 14, 1914, p. 811.
16. Churchman: Am. Jour. Med. Sc., 1914, cxlviii, 722.
17. Krotoszyner, M.: Differential Diagnosis of Nephrolithiasis and Renal Tuberculosis by Roentgenography, THE JOURNAL A. M. A., Dec. 5, 1914, p. 2006.
18. Wildbolz: Ztschr. f. Urologie, First Suppl., 1912, pp. 29-74. (Quoted by Braasch.)
19. Elkhorn: Baumgarten's Jahresb., 1910, xxvi, 490.

usually clears up unless it has advanced too far, when the condition is exceedingly deplorable and difficult to relieve.

THE URINE IN TUBERCULOSIS OF THE GENITAL TRACT

The occurrence of tubercle bacilli in the urine of patients with tuberculosis of the epididymus, the seminal vesicles, or the prostate, has never been thoroughly investigated. Marwedel found tubercle bacilli in the urine in four cases of prostatic tuberculosis. My own experience is very limited, but in three cases no acid-fast rods were found in the urine. When the prostate or seminal vesicles are involved, massage may produce a secretion containing tubercle bacilli. The constant presence of the occurrence of tubercle bacilli in large numbers would suggest tuberculosis of the urinary tract as well.

Fortunately the diagnosis of tuberculosis in the genital tract rarely depends on the discovery of tubercle bacilli in the urine. An enlarged globus major with a thickened or slightly enlarged seminal vesicle or irregular or nodular prostate in a patient with a preexisting tuberculosis can be diagnosed as tuberculous. Barney's[20] paper on this subject should be consulted.

CONCLUSIONS

1. No staining method differentiates absolutely tubercle bacilli from smegma bacilli, but cultural methods may aid greatly.
2. Animal inoculation, with the production of tuberculosis, is an absolute test, but of value only when positive.
3. The same care about the collection of urine should be exercised as about the collection of sputum.
4. Tubercle bacilli can be excreted through apparently normal kidneys.
5. Radiography may aid in the quick detection of caseous foci when the urine contains no tubercle bacilli.
6. Spontaneous healing is often fictitious.
7. The final, and often the best, treatment for renal tuberculosis on diagnosis, is nephrectomy followed by the use of tuberculin.
8. Tubercle bacilli occur in the urine in genital tuberculosis usually late in the disease and are consequently of little aid in diagnosis of the condition.

20. Barney, J. D.: Ultimate Results of Genital Tuberculosis in the Male, THE JOURNAL A. M. A., Dec. 26, 1914, p. 2274.

Infectious Diseases an Unnecessary Waste.—Sir Frederick Treves believes that the time will come when hospitals for infectious diseases will be empty and not wanted. This is to be accomplished by hygiene. The fight is against millions of microbes, and the weapons are sanitary regulations, municipal government, the sanitary inspector and the health officer. The mystery of the ancient doctor, with his long words and extraordinary prescriptions, is passing away. The multitude of shelves of bottles which surrounded lives also is passing away and being replaced by simple living, suitable diet and plenty of sun and fresh air. The time will come when it will be as anomalous for persons to die of scarlet fever, typhoid, cholera or diphtheria as for a man to die of a wolf's bite in England. Personal hygiene is only beginning to be generally exploited. It is manifest destiny that a wise economy of vitality will sooner or later be practiced. Waste of vital resources is as irrational as waste of natural resources. Neither is inexhaustible and both must be conserved. Thoughtlessness and ignorance are the reasons for the appalling waste of both now going on.—Irving Fisher, "Report on National Vitality."

FAMILIAL SYPHILITIC INFECTION IN GENERAL PARESIS *

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In view of the fact that so little definite information concerning the importance of familial syphilitic infection in paresis has been brought before the American medical public, it has been thought desirable to present briefly certain observations which we have been able to make in this connection during the past three years.

The material on which our observations have been made includes, first, fifty-five clinically unquestionable cases of general paralysis in married individuals admitted during this time in which we have been able to test the presence of syphilitic infection in the other mate, and secondly, eighty-six cases in which the anamnesis concerning intimate family matters of absolute sterility, pregnancies with early abortions, total number of living-born children, with additional abortions, miscarriages, etc., could be accepted without question.

We have been able to examine the blood serum of the conjugal mate in fifty-three married paretics. Seventeen, or 32.7 per cent., of these cases showed a positive Wassermann reaction. Although this figure is sufficiently high to be striking, it yet does not represent the whole situation. One wife, acknowledging a severe infection following a lip chancre, had had careful treatment and presented at the time of our examination a negative Wassermann reaction. The first wife of a patient, whose second mate now has a strongly positive reaction, herself died of syphilitic disease. Of two female paretics, the husband of one preceded her in the development of paresis by about one year, while the husband of the other died of tabes about two years before. Since both of these husbands must have had syphilis, they should be added to the total. Although there are other possible factors, such as, for example, a wife showing a repeatedly negative Wassermann reaction and yet a history of repeated abortions without living children, or where the wife has a negative reaction but with children showing a positive Wassermann, which would justify assuming an additional number to swell this figure, at the present time we will add only these unquestioned cases. These additions show that in the families of fifty-five paretic patients there is a total of at least twenty-one mates infected with syphilis.

Separating this group into the two sexes, we find that in forty-nine cases in which the husband is paretic, seventeen wives are infected with syphilis; in six cases in which the patient is a woman, there are four husbands who are known to have syphilis.

While these figures are high, they are not greatly higher than other investigators have found and, as already suggested, probably underestimate rather than exaggerate the real situation. In a study of fifty-four cases of married paretics Plaut and Göring[1] found the other mate showing a positive Wassermann reaction in 32.6 per cent., a slightly smaller number than our figures of 38.18 per cent. Hauptmann[2] includes among forty-three cases where he investigated whole families serologically, eighteen cases of paresis in which

* From the Psychiatric Clinic, University of Michigan.

1. Plaut and Göring: München. med. Wchnschr., 1911, No. 37, p. 1959.
2. Hauptmann: Ztschr. f. d. ges. Neurol. u. Psychiat., 1912, viii, 36.

he found a positive Wassermann in twelve mates, or the enormously high figure of 66⅔ per cent.; but, inasmuch as he picked these cases for a special purpose and did not take them as they came, as in Plaut and Göring's study and in our own, this figure does not concern us.

The number of these infected mates who had previous knowledge of any infection, or who could tell us of any suspicious signs of secondaries, was the extremely small figure of two. Only one of them had had any antisyphilitic treatment. The matter of regularly mild or no skin and mucous membrane lesions appears to be about as common as similar observations on paretics themselves.

At the time these paretic patients entered the hospital, excepting the two where the other mate was known to have already had paresis and tabes, respectively, there was only one case in which ordinary clinical methods, such as could be used in examining a visitor, gave sufficient grounds for assuming organic disease of the central nervous system in the conjugal mate. This was in a wife with the Wassermann reaction on her blood strongly positive, apparently regularly moderate and occasionally excessive in her alcoholic habits, who showed a slightly sluggish reaction of her pupils to light and unequally diminished knee jerks. She showed some difficulties in her speech, an ataxic tremor in her writing, mild defect in retentive memory, spreading of impulses through her facial muscles under mild emotion, and some difficulties in solving involved mathematical tests. Though one appears justified in making a clinical diagnosis of conjugal paresis in her case, yet in view of her showing signs of mild alcoholic intoxication on each of two visits, in itself a very significant fact, until we shall have been able to examine her cerebrospinal fluid we shall not include her further in our statistical consideration.

It so happens that in our material we are quite certain in each case which mate was infected with syphilis before marriage, and from now on in this paper that individual will be spoken of as the infecting member. In only three cases was the woman the first infected; in two of these the serum examination on the husband was negative, while in the third the reaction was positive.

The relation of already developed metasyphilitic disease in the other mate is interesting. In one case both mates were paretic; in the other case the original infecting mate was tabetic, with the infected member paretic. How many metasyphilitic mates should we expect? This query leads us immediately into the big question of the existence of a lues nervosa, but it is well perhaps merely to state the results of some other careful observations. Mattauschek and Pilcz,[3] from observations on 4,134 army officers infected with syphilis between 1880 and 1900, found 4.67 per cent. to have developed paresis by 1912 and an additional 1.6 per cent. to have developed tabes, a metaluetic total of 6.27 per cent. These figures concern, however, a rather specialized group and one exposed to many of the factors supposed to tend to metasyphilitic disease. Pick and Bandler found that among 2,066 syphilitics coming to the Prague Skin Clinic during 1879-1899, twenty-eight had become paretic in 1904, a percentage of 1.3. O. Fischer[4] separates these into the two sexes and shows that among 1,178 men 25 had paresis and 12 tabes and among 888 women 3 had paresis and 2 tabes, or 3.7 per cent. of the men and 0.55 per cent. of the women had in that interval developed a metaluetic disorder. What proportion of these had obtained their syphilis in the first place from one who had, or later developed, a metaleutic disorder is unknown. In his own 500 cases of paresis Fischer had 395 married individuals. Among the 319 men 1 wife developed paresis and 2 tabes, while among the 76 women 5 husbands had paresis and 2 tabes; that is, a total of 10 metaluetic individuals, or 2.5 per cent. of the infected mates developed some metaluetic condition. Mönkemüller among 741 married paretics found 18 cases, or 2.14 per cent., of conjugal metaluetics. These figures, even when applying only to the cases of conjugal paresis, 6 in Fischer's cases and 14 in Mönkemüller's, are considerably higher than Hannard and Gayet[5] found among 2,429 married paretics in two French institutions where only 23 mates developed conjugal paresis.

In our material, starting with 51 metaluetic husbands, whom we are justified in assuming to have been the infecting agents, and of whom we grant that possibly one was only a tabetic, we find that among 19 infected wives 2 have already developed general paralysis. In this smaller number of cases the percentage of wives to have already developed paresis is 3.9 per cent. when figured on the entire number, but when figured on the number of wives shown by the Wassermann reaction to be infected with syphilis, it reaches the astounding figure of 10.5 per cent. It so happens that this figure agrees exactly with the percentage Fischer reaches in studying his 76 female paretics, where he assumes, rightly or wrongly, that all these wives got their syphilis from their husbands after marriage.

We have further been able to study the matter of sterility and the number of abortions and living-born children in 86 cases in which the accuracy of the anamnesis, furnished by the wife or husband of the patient and confirmed in many cases by the patient, could be definitely depended on. The conditions found are clearly illustrated in the accompanying table.

DATA CONCERNING FERTILITY IN PARETIC MARRIAGES

	Total Number	Sterile Completely	Abortions Only	Total Number of Abortions	Living-Born Children
Male G. P...	76	22	10	43	110
Female G. P.	10	6	1	1	13
Total	86	28	11	44	123

This table shows that of 86 marriages among paretics, 39, or 45.4 per cent., were absolutely childless. Of this number 28 marriages, or 32.5 per cent., were completely sterile, while the additional 11, or 12.7 per cent., resulted only in abortions. This total number agrees almost exactly with Heubner's figures of 45.7 per cent. of childless marriages, although his percentage of completely sterile marriages is about 7 per cent. higher. This percentage is considerably higher than Kraepelin's[6] findings of about 18 per cent. of unfruitful marriages in his Munich material, which is not much higher than the figure for the whole Ger-

3. Mattauschek and Pilcz: Ztschr. f. d. ges. Neurol. u. Psychiat., Orig., 1912, viii, 133; 1913, xv, 608.
4. Fischer, O.: Ztschr. f. d. ges. Neurol. u. Psychiat., Orig., 1913, xvi, 120.
5. Hannard and Gayet: Ann. Medico Psychol., 1911, xiii, 200, 403; xiv, 36.
6. Kraepelin: Lehrbuch der Psychiatrie, Ed. 8, iii.

man population, and yet distinctly lower than Regis gives, who assumes that three-fourths of paretic marriages are childless.

Even more interesting and startling is the matter of the living-born children. The average number of living-born children in this group is 1.4 to each family. If we consider only those families with living-born children, we find the average to be 2.24 children per family. In this group, however, are included 2 instances in which there is the unusually large number of 10 and 12 children, respectively. If we exclude these two abnormally large families we find that 75 families of male paretics have 98 living-born children and 9 families of female paretics have 3 living-born children. The average would then become 1.2 children per family, or where the father was paretic, 1.3 children per family, and where the mother was paretic only 0.3 children per family. Our number of paretic wives, we grant, is extremely small and not sufficient in itself to warrant drawing conclusions from it alone, but it is found quite generally that when the mother is the paretic the influence on the matter of sterility, number of abortions and small number of living-born children, together with their character, is more marked than where the father is paretic.

Further study of the histories of these 84 families with 101 living-born children shows that at the time the paretic patient entered the hospital, in this series averaging a period of 11.6 years after marriage, 20 children of this extremely small total of 101 died. Usually these deaths were in early infancy, as in the following instances, in which definite statements are noted: "1 immediately and 1 at the end of the first day," "1 at the end of the first week and the other of hydrocephalus at 5 months," "1 of spasms at 5 weeks," "1 of convulsions in early infancy." Subtracting these 20 children already dead from the total number, we find that in 84 families after a married life averaging 11.6 years, there were living only 81 children or less than one living child per family.

There is no statistical compilation of similar conditions in the general population which will allow satisfactory comparison of these figures. The nearest approach to this end is the tables of the United States Census in which we find that the average family in the State of Michigan in 1910 consisted of 4.3 individuals. With the two parents subtracted from this figure it leaves a total of 2.3 living children per family of the entire population. We do not know the average length of married life in these families entering into this general statistical compilation, but it would appear quite justifiable to assume that it at least equaled the period of 11.6 years found in our present series. Granting this assumption, we are able to conclude that the number of living children in the average family throughout the State of Michigan is 2.38 times as large as the average number of living children in the families of our series of paretic patients.

It would be desirable to know just when the original syphilitic infection occurred, the position that each pregnancy and miscarriage bore to that time and the relation which the three different types of marriages outlined above bore to this varying interval before marriage. All who try to obtain accurate histories from this type of patients know such information is very unsatisfactory at best, and inasmuch as we are not at this time going deeply into the matter of the character of the living offspring, we have purposely minimized its importance.

Our examinations of the serum of the children in these cases have not as yet been extensive enough to warrant drawing any conclusions. Plaut and Göring found among 100 children of their 54 cases a positive Wassermann reaction in 26 instances. They found in some families children showing a positive reaction where the mother's serum gave a negative reaction, and again, some children with positive and others in the same family with negative reactions. Similar observations can be found in Hauptmann's series and in our own cases. Although only 26 per cent. of Plaut's cases gave serologic evidences of syphilitic infection, 45 per cent. showed some defect in their physical conformation or signs of a psychopathic constitution, although as a rule they were intellectually well gifted. In many cases these defects are degenerative physical states no different from similar conditions found in children in whom other toxic agents, such as alcohol, have impaired the normal development of the germ plasm. The negative reaction in such cases, Hauptmann, drawing on bacteriologic distinctions, would explain as due to the condition being purely an intoxication, and assumes such children not to be infected with the treponeme. Such children do not show signs of definite specific disease. Theoretically they should not later develop juvenile paresis or even non-nervous specific disease. Whether they can later develop a primary sore is highly interesting. It is assumed that the Wassermann reaction and other of the four signs long precede the development of paresis. Since juvenile paresis and other evidences of lues hereditaria may not appear until the second and third or even fourth decade, it will require longer observation to prove whether this assumption holds true. Since this problem is very closely allied to the influence of constitutional syphilis on the descendants, we will leave it with the statement that competent observers have found about one-fourth of the living children of paretics to be actually infected with syphilis and approximately another fourth to show definite evidences of degenerative influences in their physical or mental constitution.

The number of cases in our series is admittedly small, but since they are taken as they came over a space of three years, and since they agree very closely with similar deductions made from larger numbers, one is justified in believing that they present a truthful picture.

With so much said, the next pertinent question is, What are you going to do about it? We have already commented on the pitifully small number of the infected mates of our paretics who had any knowledge of their disease. The same condition obtains, to be sure, in a large majority of all paretics. Treatment as ordinarily carried out with pills, even in those cases that are recognized, is the harmful factor. Some competent syphilologists have said that in those cases in which they have had control of the treatment of their syphilitics from the beginning, they have never seen tabes or paresis develop. Recent years have shown an unusually high percentage of early involvement of the central nervous system even in the secondary stages, particularly from the work of Ravaut and of Wile. Correct diagnosis of the syphilitic condition should be made and careful, persevering treatment given, with attention to the newer findings in the cerebrospinal fluid. If these pathologic changes do not permanently disappear under acceptable mercurial and salvarsan treatment, direct intraspinal introduction of

salvarsanized serum in some form, with proper Wassermann control before permitting marriage and then similar careful observation, serum examinations and, if necessary, treatment in the case of the wives and children of all syphilitics, should theoretically offer some relief.

CONCLUSIONS

The large number of 38.18 per cent. of conjugal mates of paretic patients is shown to be infected with syphilis. In most of these mates the condition courses unrecognized as lues latens.

A pitifully small number of them ever receive treatment.

The proportion of these infected mates who later develop paresis appears to be higher than those who receive their infection from non-metasyphilitic sources.

The number of completely sterile marriages in syphilitic families in which one individual later develops paresis is abnormally high, constituting 32.5 per cent. This percentage is higher when it is the female mate that later becomes a paretic.

The number of marriages in which repeated pregnancies result only in abortions is likewise abnormally high, constituting in our series 12.7 per cent.

Of our series of eighty-six marriages 45.3 per cent. were absolutely childless.

Among 167 pregnancies there were forty-two abortions, miscarriages and stillbirths.

Among 123 living-born children twenty had already died before their eleventh year.

The number of living children per family is abnormally small.

A large number, in some investigations reaching as high as 25 per cent., of these children are actively syphilitic.

An equally large additional number show signs of degenerative physical conformation and psychopathic tendencies without a positive Wassermann reaction.

Much of all this is preventable.

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A REVIEW OF THE PRINCIPAL METHODS USED TO STANDARDIZE BACTERINS (BACTERIAL VACCINES)

WITH SPECIAL REFERENCE TO THE USE OF THE HEMOCYTOMETER *

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The use of bacterins in the treatment and prevention of disease has steadily increased since their introduction by Wright in 1902. "Vaccine therapy," so called, is now used by nearly every practitioner of human or veterinary medicine. Much more attention, however, has been paid to the extension of the application of this branch of medicine than to the study of its underlying principles and the perfection of its technic. One of the first requisites is an accurate and reliable method of estimating the number of dead bacteria inoculated. There are a few workers who will doubtless claim that it is quite immaterial whether a few million bacteria, more or less, are injected, and furthermore, that no method is absolutely accurate. These criticisms are not confirmed by careful scientific work. Those who are familiar with the use of bacterins know that often their injection is followed by unexpected results due to the toxicity of the bacterin, the idiosyncrasy of the patient or too large a dose, further, that while it is true that probably no method gives the exact number of bacteria, certain procedures lead to more accurate results than others.

During the last few years, I have prepared many bacterins for human and veterinary use. In their preparation the great inaccuracy of the methods of standardization has been thoroughly impressed on me. The more reliable methods were used and finally one was adopted, that is, the hemocytometer, which seemed to give by far the most reliable results. This method has been employed for the past three years.

On the publication of the article by Glynn, Powell, Rees, and Cox,[1] in which they give the results of very careful comparisons of the different methods, these results were compared with those obtained by me and found to agree in practically every instance. The technic which gave the most reliable results with them was the one used by me with several minor modifications. So far as known this method is not widely used in this country and it has been thought advisable to review the different methods of bacterin standardization with the relative advantages and disadvantages of each.

I. WRIGHT'S METHOD

Wright[2] first described his method in 1902. In its original and simplest form it consists in mixing measured and usually equal volumes of bacterial suspension and normal human blood with a small capillary pipet on a glass slide. From this mixture films are made on glass slides, stained, and a number of fields are examined microscopically. The number of bacteria and corpuscles are counted in each field and the ratio of the bacteria and red corpuscles found. The average number of red corpuscles is known to be 5,000,000 per cubic millimeter in a normal individual. Therefore, if there are two bacteria to each corpuscle in the different fields then the bacterial suspension is assumed to contain 10,000,000,000 per cubic centimeter. Allen[3] modified this method by using two or three volumes of a 2 per cent. sodium citrate solution as a further diluent for the bacterial suspension and blood. This was employed in order to prevent coagulation of the blood during the mixing process. He also used 5,500,000 as the average number of corpuscles per cubic millimeter. Nearly all of the stock bacterins now on the market are standardized by this latter modified method.

The criticisms of Wright's methods are many, among them we quote from Glynn, *et al.:*

Wright's standard of comparison, namely, 5,000,000 red-blood corpuscles per cubic millimeter, is not altogether accurate; thus Cabot[4] states: "At the level of the sea and in adult life the normal number of red cells per cubic millimeter is about 5,000,000 for men and 4,500,000 for women. This is frequently exceeded in vigorous healthy persons; 6,000,000 is by no means rare among healthy young men, and higher figures are seen occasionally."

* From the Department of Pathology and Bacteriology of the New York State Veterinary College at Cornell University.

1. Glynn, E.; Powell, A. A.; Rees, and Cox, G. L.: Observations upon the Standardization of Bacterial Vaccines by the Wright, the Hemocytometer and the Plate Culture Methods, Jour. Path. and Bacteriol., 1913, xviii, 379.
2. Wright, A. E.: On Some New Procedures for the Examination of the Blood and of Bacterial Cultures, Lancet, London, 1902, ii, 11.
3. Allen: Vaccine Therapy and Opsonic Treatment, Ed. 4, Philadelphia, P. Blakiston's Son & Co., 1912.
4. Cabot, R.: Clinical Examination of the Blood, Ed. 5, New York, William Wood & Co., 1904.

A practical illustration of this difficulty is afforded by the recommendation of Hewlett[5] to employ 5,000,000 as a standard, and Allen, 5,500,000—an increase of 10 per cent. Muir and Ritchie advise the observer to estimate "the red cells in his blood," which, of course, adds to the labor.

Wright's method is extremely ingenious and simple, and has been of great service to medicine by supplying a rough means of standardization. Many workers, however, have abandoned it as too inaccurate. According to Leishman, its chief defect is "the difficulty in securing a perfect film in which the ratio of germs to cells shall be constant throughout"; he also remarks, "Although at times we obtained results which were controlled by a living count, made by dilution and plating out on agar, we were unable to obtain consistently satisfactory results, and, in the case of broth vaccines, errors of from 50 to 100 per cent. in counts of the same film made by different observers were by no means uncommon."

Harrison states: "Unfortunately, in actual practice the process gives very variable results, and even in the hands of its author it gives figures with a variation of as much as 22 per cent. above and below the average of two counts."

Callison says: "As the technic is usually carried out, however, the result is little better than a good guess. The operator pricks his own finger, rarely going deep enough to allow the blood to flow freely, draws into a capillary pipet some of the blood and some of the bacterial emulsion, and then, by working rapidly, mixes the two as much as possible in order to make a smear before coagulation takes place. A little study of such a smear will demonstrate the inaccuracies that result from counting successive fields of red cells and bacteria. The distribution is freakish, and the thick and thin areas of the smear do not coincide. The worst feature of such a smear lies in the fact that in that part where the stroke begins there is a heavy deposit of bacteria, while in the last part it consists almost exclusively of red cells. No estimate of the concentration of a bacterial emulsion, based on a count of such a smear, can be accurate. Another objection to the method is that it does not seem wise to be constantly pricking the finger while working with bacterial cultures."

II. THE NEPHELOMETER METHOD

This was devised by McFarland[6] and is described by him as follows:

It consists essentially of a series of standardizing tubes containing a suspension of fine precipitate approximating bacterial suspensions in opacity and a holder for making their comparison easy. The standard suspensions used are precipitates of barium sulphate made as follows: Two solutions, one a 1 per cent. solution of chemically pure sulphuric acid, the other a 1 per cent. solution of chemically pure barium chlorid, are prepared, then the one added to the other so that ten standards are prepared, containing 99 c.c. of the sulphuric acid and 1 c.c. of the barium chlorid; 98 c.c. of the sulphuric acid and 2 c.c. of the barium chlorid; 97 c.c. of the sulphuric acid and 3 c.c. of the barium chlorid, etc. According to the number of cubic centimeters of barium chlorid added, these are denominated 1, 2, 3, 4, etc. About 3 c.c. of each standard solution is sealed in a small test tube, care being taken to use tubes of uniform diameter and also to provide similar tubes for mixing the bacteria to be compared with the standard.

The modus operandi of using the instrument is very simple. The standard tube appropriate to the experiment is selected, well shaken, stood in the left-hand pocket of the instrument and a tube containing sterile salt solution stood in the other. The surface growth of the bacterium to be suspended is taken up with a platinum loop and stirred in, rubbing the bacterial mass on the side of the tube just above the surface of the liquid and gradually adding the fluid to it by tilting the tube so as to avoid suspending masses of the culture. When the mixture appears homogenous a comparison is made by looking through the instrument against the sky. If the density be insufficient, more bacteria are added; if it be too dense, fluid can be added drop by drop from a medicine dropper or, what is better, the tube can be given a few turns in the centrifuge, by which the larger clumps of bacteria are thrown down and compared again. One should not be content with the comparison until the suspension be tried with others of the standard tubes than that which one intends to imitate. It is surprising at times to see how what is thought to be an exact equivalent will turn out to be 1 per cent. more or less dense.

This method was used by McI. Phillips[7] in standardizing the vaccines used to treat poll evil and fistulas in horses. It also was the first method used by me.

The errors in the use of this method are very large. The results obtained were compared with those obtained by the hemocytometer (to be described later) and were found to vary from 25 to 200 per cent. This great variation practically places it outside the limit of an accurate method. I agree with Callison,[8] who says concerning it: "It is only necessary to say that this method is *merely* a *guess*. The density of color in a given emulsion will be affected by many conditions aside from the bacterial content, and no two individuals will agree in their judgment as to the density of a color."

III. WEIGHT METHOD

This method was devised by Wilson and Dickson and is described as follows:

The combined weight of a rectangular piece of thin platinum foil (1½ inches by 1 inch) and of a small dry test tube is estimated. The bacterial growth is carefully scraped off the surface of the medium and transferred to the platinum foil, which is then replaced in the weighing tube. The latter is now put in a desiccating chamber, which may conveniently be made out of a strong boiling tube, to the orifice of which a rubber cork pierced by two glass tubes is fitted. One of these tubes is attached to a Sprengel pump; the other has a well-fitting stopcock, and is connected with a bulb filled with cotton wool; by this air is gradually admitted when desiccation is completed. The desiccating tube and contents are then placed in a water-bath at 50 C., and the Sprengel pump set working.

Desiccation is complete in less than fifteen minutes, when air is cautiously admitted by way of the stopcock, and the glass tube and foil allowed to cool within the desiccator. They are then weighed and the amount of bacterial growth estimated. The platinum foil is then spread out in a sterile dish, the pestle moistened with salt solution, and the dry growth carefully emulsified, salt solution being added drop by drop. In less than five minutes emulsification should be uniform and complete.

They give the following values in round figures for the number of bacteria in 1 mg. of dried growth of the various bacteria:

Staphylococcus	3,000,000,000
Streptococcus	3,400,000,000
Gonococcus	4,500,000,000
Meningococcus	3,000,000,000
B. coli	6,400,000,000
B. typhosus	8,000,000,000
B. pyocyaneus	3,400,000,000
Bacillus of Friedländer	4,300,000,000
M. melitensis	14,000,000,000

5. Hewlett: A Manual of Bacteriology, Ed. 4, Philadelphia, P. Blakiston's Son & Co., 1911.

6. McFarland, Joseph: The Nephelometer, The Journal A. M. A., Oct. 5, 1907, p. 1176.

7. Phillips, J. McI.: The Treatment of Suppurative Conditions in Animals by Bacterial Vaccines, Including a Preliminary Report of the Use of a Hyper-Immune Serum in Canine Distemper, Am. Vet. Rev., xxxvi, 1909-10, p. 656.

8. Callison, J. G.: A Diluting Fluid for Standardization of Vaccines with the Hemocytometer, Jour. Med. Research, 1912-13, xxvii, 225.

They claim that the method is simple, rapid, gives uniform results, and is applicable to all bacteria which grow on solid media, whether they form uniform emulsions or not, and that the subsequent preparation of a uniform emulsion is much facilitated by the rapid desiccation.

This method has not been used by me, as considerable special apparatus is necessary for its application.

IV. PLATE-CULTURE METHOD

This method implies the standardization of bacterial suspensions by agar-plate cultures. The suspension is first filtered and centrifuged to do away with the clumps of bacteria. Dilutions usually 1:100, 1:1,000, 1:1,000,000 and 1:100,000,000 are prepared with sterile salt solution, and from these plates cultures are made. They are incubated at 37 C. (98.6 F.), for from forty-eight to seventy-two hours, and then the colonies are counted.

This method has many serious defects. 1. It is long, tedious and cumbersome, requiring from two to three days before the results can be known. 2. A colony may represent the growth of more than one bacterium, which often happens when the suspension is not perfectly homogenous or when diplococci are contained in it. 3. Some of the bacteria may not grow or may even be dead, so that the number of colonies does not represent the number of organisms contained in the suspension.

In comparing this method of estimating the number of bacteria with the actual counting by the hemocytometer it was found that the plate method underestimated. The variations were from 25 to 150 per cent. and always the plate method gave a less count than the hemocytometer.

These figures agree with those reported by Glynn, *et al.*, who state that the deficit obtained ranges from 50 to 200 per cent. This also agrees with the work of Breed[9] and Brew[10] on the comparison of the microscopic and plate method of counting bacteria in milk. They found that the plate method gave results that were from 5 to 44 times less than those obtained by the direct microscopic method.

From the preceding data it is readily seen that the plate method is not suitable for the standardization of bacterins.

V. GRAVIMETRIC METHOD

This method, as employed by Hopkins,[11] consists in the use of a special centrifuge tube, the end of which is drawn out into a small tip. This is graduated in hundredths of a cubic centimeter. The procedure is the following:

The sterile cotton filter is moistened with salt solution and the funnel is placed in the mouth of the centrifuge tube. The bacterial growth is washed from the surface of an agar culture with salt solution and transferred with a pipet into the funnel. The filtration serves to remove any particles of agar or cotton that may be taken up and also the larger clumps of bacteria. The tube is then covered with a rubber cap, and, after another tube has been filled to the same point so as to balance, is centrifugalized for half an hour. The salt solution and bacteria above the 0.05 mark are then removed, and 5 c.c. of saline solution are measured into the tube. If the sediment does not reach the 0.05 mark, its volume is read on the scale and enough saline solution is introduced to make a 1 per cent. suspension. The sediment is then resuspended by forcing the salt solution into the tip with a capillary pipet and drawing the mixture in and out of the pipet repeatedly. The suspension is next transferred to a test tube to be killed in the usual manner. The tubes are washed, first in phenol (carbolic acid) and then in distilled water, the fluids being drawn into the tip with a pipet.

It is customary to express the dosage of vaccines in terms of the number of organisms injected. Estimations made by centrifugalizing carefully counted suspensions give the following average values for a 1 per cent. suspension of the organisms commonly used when centrifugalized for one-half hour on a head 18 cm. in diameter, at 2,800 revolutions per minute. Similar values could readily be determined for centrifuges with lower speed:

	Per Cent.	Billion per c.c.
Staphylococcus aureus and albus	1	10
Streptococcus hemolyticus	1	8
Gonococcus	1	8
Pneumococcus	1	2.5
Bacillus typhosus	1	8
Bacillus coli	1	4

The pneumocicci used were grown on moist serum agar and had well-developed capsules.

With staphylococci the method gives very constant results as compared with a direct count, as the organisms are uniform in size and pack evenly. With colon bacilli and streptococci the count of a 1 per cent. suspension varies considerably, partly because of the great difference in the size of individual organisms of different strains and partly because of inequality in the packing of the sediment. The weight of the sediment dried to constant weight *in vacuo* gives the best index to the accuracy of the method. On a number of determinations the weight of 0.1 c.c. of staphylococci varied from 28.6 to 34.8 mg., with an average of 31.1 mg.; 0.1 c.c. of typhoid bacilli from 22.5 to 27.0 mg., with an average of 24.7 mg., and 0.1 c.c. of colon bacilli from 10.0 to 17.5 mg., with an average of 13.2 mg.

This method, as its author states, gives but approximate results and when they are compared with those obtained by the hemocytometer vary widely. No attempt has been made to tabulate the comparative results, as they differ between such wide limits.

VI. HEMOCYTOMETER METHOD

This method of standardization was first used by Mallory and Wright.[12] They describe their procedure as follows:

The chamber used is manufactured by Zeiss for counting blood plates by the Helber method. It should be supplied with an especially thin cover glass (No. 146 Zeiss' Catalogue) to permit the use of the high-power dry objective, with which the counting is made. The chamber is ruled like the "Thoma-Zeiss blood-counting chamber," and the rulings have the same value except that the chamber is 0.02 mm. deep instead of 0.1 mm. For counting, the suspension of bacteria is diluted and mixed with distilled water 1:200 with the aid of the red-blood-corpuscle pipet of the "Thoma-Zeiss" apparatus. By a simple calculation it will be apparent that the product of the multiplication of the average number of bacteria per small square by 4,000 million will be the number of bacteria per cubic centimeter.

This method was used also by Murray who, however, employed a common Thoma-Zeiss hemocytometer with a well 0.1 mm. deep, an ordinary cover slip which is not optically plane, a $\frac{1}{12}$ oil-immersion lens and a staining solution of weak Giemsa's stain.

Mallory and Wright's technic was the first employed by me, using, however, a diluent which stained the

9. Breed, R. S.: The Determination of the Number of Bacteria in Milk by Direct Microscopical Examination, Centralbl. f. Bakteriol., XXX, Part II, Orig., p. 337.

10. Brew: A Comparison of the Microscopical Method and the Plate Method of Counting Bacteria in Milk, Bull. 273, New York Agric. Exper. Sta.

11. Hopkins, J. G.: A Method for Standardizing Bacterial Vaccines, THE JOURNAL A. M. A., May 24, 1913, p. 1615.

12. Mallory and Wright: Pathological Technique, Ed. 4, Philadelphia, W. B. Saunders Company, 1910.

bacteria, and an ordinary 0.1 mm. deep hemocytometer. An aqueous solution of methylene blue was first employed. This was not found satisfactory, as there was insufficient contrast between the fluid and the bacteria. Aqueous solutions of carbol fuchsin and carbol thionin were later employed. The latter was found to be the most satisfactory of any yet tried. No definite depth of stain was used, as it was found that certain organisms required more stain than others. Usually 3 per cent. saturated alcoholic solution of thionin was added to 2 per cent. phenol in sterile distilled water.

Glynn *et al.* recommend the following as a diluting fluid:

Stock Solution A.—Saturated thionin-blue (Grübler) in absolute alcohol.
Stock Solution B.—1 per cent. of pure phenol in clear tap water.
Take one part of Solution A to about 40 of Solution B, for most organisms, or 1 part of A to about 20 of B, for streptococci.

Callison uses a fluid prepared as follows:

Hydrochloric acid..... 2 c.c.
Mercuric chlorid 1 to 500..... 100 c.c.
Acid fuchsin, 1 per cent. aqueous solution, enough to color.
Add the fuchsin until the solution is a deep cherry red.

This diluent possesses certain advantages over the others: 1. The bacteria are well stained and there is sufficient contrast to make them easily visible.

2. The fluid is permanent and can be used for a long time. After frequent filterings more of the acid fuchsin should be added to keep the color constant.

3. The mercury in the fluid reacts with the protein of the bacteria, forming a mercurial albuminate. This causes a much more rapid sedimentation and very few of the organisms will be found to adhere to the cover slip.

The ordinary hemocytometer chamber used for blood examinations is 0.1 mm. deep. The optically plane cover slip is 0.4 mm. thick. The lens commonly used is a 4 mm. objective with a long focal distance. It is impossible to employ the oil-immersion $\frac{1}{12}$ or even an ordinary $\frac{1}{8}$ objective with this outfit, as the free working distance of the lens is not sufficient to permit the use of this thick cover glass. A thinner cover glass which is not optically plane is usually supplied with the Zeiss or Leitz hemocytometers. This can be used with the oil-immersion lens. However, serious defects are apparent. It is very difficult and sometimes impossible to obtain Newton's rings with this cover slip and also the objective often depresses it, lessening the depth of the cell. The action of the lens and oil often causes a disturbance of the bacteria which have settled to the bottom of the counting chamber (due to suction). These defects are elminated if another counting chamber is employed. The hemocytometer devised by Helber for estimating the number of blood platelets has a depth of 0.02 mm. If this chamber be used with an optically plane cover slip 0.18 mm. thick, an oil-immersion lens may be employed without the difficulties encountered with the chamber 0.1 mm. deep. It has been found, however, that the ordinary 3 mm. or $\frac{1}{8}$ objective gives very good results when used with this chamber. The summarized advantages of the 0.02 mm. chamber are as follows:

1. This apparatus can be used with an oil-immersion lens or a $\frac{1}{8}$ objective.

2. The cell being but 0.02 mm. in depth, the bacteria settle to the bottom more quickly than in the 0.1 mm. chamber.

3. The organisms can be seen much more distinctly because of the less depth of fluid.

The exact technic of standardization as now employed is the following:

The bacterial suspension is drawn up to the 0.5 mark in a Carl Zeiss' leukocyte pipet. Callison's diluting fluid is then drawn in to fill the pipet up to the 11 mark and the pipet is thoroughly shaken. This makes a dilution of 1:20. The bacteria are allowed to remain in the pipet for ten minutes in order to stain. After again thoroughly mixing, a small drop is placed on the center of the 0.02 mm. chamber (Helber) and the cover slip (optically plane 18 mm.) is placed in position. Care must be taken not to use too large a drop, as it will run over the safety trench and under the cover slip spoiling the preparation. When properly filled, place the counting chamber on the stage of the microscope, which has been *previously leveled.* Allow to remain quiet for fifteen minutes. The 1/12 oil immersion or $\frac{1}{8}$ dry lens may be used to count the bacteria. The latter is preferred. The ocular employed magnifies ten times. A lower eye-piece, as one magnifying 6.4 or 5 times, may be used with the oil-immersion lens. Count 100 squares, usually twenty-five in each corner of the ruled area. To estimate the number of bacteria in 1 c.c. of the suspension, multiply the total number of bacteria counted in 100 squares by 4,000,000. Duplicate counts should always be made. The general formula for estimating the number of bacteria in 1 c.c. with this apparatus is the following:

$$\frac{\text{No. of bacteria counted} \times \text{dilution} \times 20{,}000}{\text{No. of squares counted}} \times 1{,}000 = \text{No. of bacteria in 1 c.c.}$$

A summary of the advantages and disadvantages of the different methods used follows:

1. Some method employing the hemocytometer offers the most accurate technic for standardizing vaccines.

2. Comparisons of different counts made of the same suspension by Wright's method showed an average variation of 15 per cent.

3. Comparisons of different counts made of the same suspension by the 0.02 mm. hemocytometer showed an average variation of 5 per cent.

4. Comparisons of counts of the same suspension made by Wright's method, Allen's modification, and the chamber method (0.02 mm.) showed that the former two gave a much less number of bacteria.

5. A less degree of uniformity of counts has been obtained with the 0.1 mm. chamber than with the 0.02 mm.

6. Callison's diluting fluid seems to be the best of any so far used.

7. The plate method of standardizing vaccines takes too long and is too cumbersome to be used in routine work. It also greatly underestimates the number of organisms in a suspension.

8. The nephelometer method possesses certain advantages, in that it is simple and quick, but it is not an accurate method, as it is impossible to judge the concentrations correctly.

Morbidity Reports and Non-Communicable Diseases.—In diseases that are not communicable, such as those due to occupation or environment, reported cases show the location of conditions which are causing illness or injury. This makes it possible to remedy the faulty conditions, so that others may not be similarly injured.—John W. Trask, Supplement No. 12, Public Health Reports, April 3, 1914.

REPORT OF THIRTY-FOUR CASES OF ARTIFICIAL PNEUMOTHORAX

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The thirty-four cases of pulmonary tuberculosis to be described have been treated during the past two years by the induction of artificial pneumothorax.

The operation has been done in this series for several indications, and I have arranged these cases as shown in the accompanying table in order to study the indications and to draw conclusions from the results so far as one can, considering the number of cases and the time they have been under observation.

In the column next to the case number, I have placed figures indicating the stage of the disease in each lung. Any method of indicating the stage of tuberculosis by figures is unsatisfactory, but I have hoped, by using them in a broad sense, to present a better picture of the general condition in each case than could otherwise be done without complete transcripts of physical examination and Roentgen-ray findings. In this diagram, 1 represents peribronchial infiltration with scattered tubercles; 2 stands for conglomeration of tubercles or consolidation; and 3 indicates that a cavity or cavities are present.

The date of the first operation only is given. The subsequent fillings have been done in each case as often as circumstances warranted, and I do not think that time need be taken here to record the number of fillings or amounts of gas used.

Nineteen of these patients were operated on on account of progressive disease. Of this number, 15 were patients in Arequipa Sanatorium which admits only early cases or cases in which the prognosis is good. They form, therefore, an unusually good series from which to judge of the effect of artificial pneumothorax in patients best adapted to its applications. These patients, originally chosen on account of the favorable nature of their process, had been under careful observation for some time and had had the benefit of the best sanatorium treatment. They represent the percentage of early sanatorium cases that do not recover under the most favorable surroundings.

In analyzing these nineteen cases from the point of view of results, we see that four attempts to compress the lung were not successful owing to pleuritic adhesions; two showed no improvement; two temporary improvement only, followed by progressive disease; ten were discharged as arrested cases, or much improved, and remain in satisfactory condition at the present time. One patient, although doing well and likely to recover, is not included in either classification as he has been under observation less than four months.

Of the ten patients who recovered, four had cavities on one side and six were in the second stage only. Of the four who were unimproved or temporarily improved, only three had cavities on one side.

We occasionally hear unilateral disease mentioned in connection with indications for artificial pneumothorax but in none of this most favorable series could I grade the least advanced lung as better than a first-stage condition.

With these figures before us, it is clear that, although we may expect a recovery in over 50 per cent. of the selected cases, this recovery rate diminishes as the areas of softening increase and cavity

RESULTS OF TREATMENT BY PNEUMOTHORAX IN THIRTY-FOUR CASES OF LUNG DISEASE

Number	Stage of Disease	Indications	Date First Operation	Result	Remarks
1	1, 2	Progressive	2/13/13	Discharged improved, 10/13/13	Apparently cured, 1/15
2	2, 1	Progressive	2/15/13	No compression on account of pleural adhesions	
3	3, 2	Progressive	3/18/13	Discharged much improved, 5/31/14	Condition satisfactory, 1/15
4	2, 3	Progressive	5/16/13	Discharged, 5/31/14	Condition satisfactory, 1/15
5	3, 2	Progressive	4/12/13	No improvement	Died, 7/13
6	3, 2	Progressive	6/ /13	Temporarily improved	Died of Bright's disease, 10/23/13
7	2, 2	Progressive	8/10/13	Discharged, 1/14/14, much improved	Condition satisfactory, 1/15
8	2, 2	Progressive	8/31/13	Discharged, much improved, 4/20/14	Condition satisfactory, 1/15
9	3, 2	Progressive	9/ 9/13	Improvement	Continued improvement, 1/15
10	3, 2	Progressive	8/31/13	No compression on account of pleural adhesions	.....
11	3, 3	Relief	9/17/13	Temporary relief	Died, 12/19/13
12	2, 3	Hemorrhage	9/22/13	No recurrence of hemorrhage	Died, 11/14
13	3, 3	Relief	9/27/13	No relief	Died, 4/15/14
14	2, 2	Progressive	10/12/13	Discharged, apparently cured, 4/30/14	Condition satisfactory, 1/15
15	3, 3	Relief	11/18/13	Temporary relief	Died, 2/14
16	1, 3	Progressive	12/14/13	Discharged, improved, 2/14/14	Condition satisfactory, 1/15
17	3, 2	Pleural effusion	1/ 6/14	No recurrence of effusion	Progressive disease complicated by nephritis, 1/15
18	2, 1	Pleural effusion	1/ 6/14	No recurrence of effusion	Returned to Germany, 5/14, much improved
19	1, 2	Progressive	2/ 3/14	No improvement	Left observation, 4/14, not improved
20	1, 2	Pleural effusion	4/22/14	No recurrence of effusion	Apparently cured, 1/15
21	3, 1	Hemorrhage	5/ 6/14	No recurrence of hemorrhages	Continued improvement, 1/15
22	2, 1	Progressive	6/21/14	Improvement	Continued improvement, 1/15
23	3, 3	Relief	6/12/14	Temporary relief	Died, 11/14
24	3, 2	Relief	6/12/14	Temporary relief	Died, 8/14
25	3, 2	Progressive	6/28/14	Improvement	Continued improvement, 1/15
26	2, 2	Progressive	7/ 1/14	Improvement	Continued improvement, 1/15
27	3, 2	Relief	8/ 6/14	Temporary relief	Continued relief, 1/15
28	3, 2	Relief	9/ 6/14	Temporary relief	Continued relief, 1/15
29	3, 3	Relief	10/10/14	No relief	Died, 11/14
30	1, 3	Hemorrhage	10/20/14	No recurrence of hemorrhage	Continued activity, 1/15
31	3, 1	Progressive	11/14/14	No compression on account of pleural adhesions	.....
32	1, 3	Progressive	11/14/14	Improvement	Continued improvement, 1/15
33	2, 3	Progressive	11/14/14	No compression on account of pleural adhesions	.....
34	1, 3	Hemorrhage	12/15/14	Two subsequent small hemorrhages with activity in opposite lung	.....

formation is found. Hence, advanced cases with cavities and softening on both sides, if operated on at all, would only be given this form of treatment in the hope of relieving distressing symptoms. That this can be done in a large number of advanced cases, I am convinced. When large cavities exist, so situated that the pus drains into a bronchus, an almost constant and distressing cough is the result. Often, in such cases, a compression of the lung will relieve this symptom when drugs and rest are unsuccessful. Eight such cases are included in this series, and five were much relieved. In three I could see no change for the better although there was certainly no change for the worse due to the operation.

Tuberculous pleural effusion is often a serious complication in lung tuberculosis, as the fluid tends to return after removal, keeping up the temperature and favoring development of the lung condition.

In removing fluid and testing the intrapleural pressure with a manometer, one is struck by the high negative pressure which results. By replacing the fluid with nitrogen or air, the pressure is maintained equal and the lung has time to adjust itself to the new conditions before the gas is absorbed. The three cases of pleural effusion treated in this way showed no recurrence of the fluid.

Hemorrhage is one of the most important indications for the operation of artificial pneumothorax. When the bleeding point is properly located and compression is not prevented by adhesions, hemorrhage is promptly relieved by lung compression even in cases that have resisted all other possible modes of treatment. In only one case have I seen a temporary recurrence of bleeding, and in that instance I believe both sides contributed to the hemorrhage.

In nearly all cases treated by artificial pneumothorax the immediate results are good. The fever is lowered, cough diminished, and night sweats disappear. One is tempted to become overenthusiastic and to employ this method as a routine measure; but this is illogical and the results will only tend to bring the operation into disfavor. Many conditions met in pulmonary tuberculosis are best treated by this procedure, and in the cases in which the induction of artificial pneumothorax is the operation of choice, we may expect recovery in over 50 per cent. When this method of treatment is used, it should be used for one of the definite indications or not at all. When this is done it will be found that the induction of artificial pneumothorax is a tremendously important addition to our means of treating lung tuberculosis.

CONCLUSIONS

The most favorable cases for lung compression are those in which cavity formation has not occurred but which, under usual methods of treatment, are progressing toward softening.

In some advanced cases with large cavities, much relief of distressing symptoms may be obtained by compressing the more advanced lung.

Removal of fluid with temporary compression by nitrogen gas or air is the most rapid and effective method of treating large pleuritic effusions.

Hemorrhage is usually promptly and permanently relieved by artificial pneumothorax.

Compression of one lung does not induce increased activity of the disease on the opposite side.

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THE REFLEX EFFECTS OF ALCOHOL ON THE CIRCULATION *

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Like all other irritant drugs, alcohol has a local and a systemic action, that is, an effect at the point of application before absorption and a general effect after it has been taken up into the blood. Whether or not alcohol stimulates the circulation after it has been absorbed is still the subject of controversy. Many clinicians regard alcohol as one of the best circulatory stimulants at their disposal, while not a few practitioners and the large majority of laboratory workers refuse to ascribe to alcohol any direct stimulating action on the circulation, and believe that when it acts at all it acts as a depressant. But little attention has been given to the other phase of the question: the reflex effect of alcohol on the circulation.

When moderately strong alcohol is taken into the mouth or swallowed it produces considerable local irritation. It is generally admitted that any peripheral irritation,[1] especially irritation of the gastric mucous membrane, produces a reflex rise in blood pressure and an acceleration of the heart.

It seemed possible that in this reflex stimulation might be found the explanation of the divergent effects reported by the clinician on the one hand and by the laboratory worker on the other. In animal experimentation it is customary to inject the alcohol directly into a vein. To prevent a reflex effect on the circulation from irritation of the vessel or adjoining tissues, the alcohol is usually well diluted. But the physician in prescribing alcohol usually gives whisky or brandy by mouth. It is rarely diluted with more than two or three times its volume of water: the patient receives a distinctly irritating drug which may be capable of initiating a reflex. Further support to the hypothesis that the stimulating action of alcohol on the circulation is a reflex one seems to be found in Cabot's[2] papers. He administered whisky or alcohol, well diluted and hence not irritating, to a number of patients, and concluded that "neither the maximum nor the minimum blood pressure showed any variations that could reasonably be referred to the action of the alcohol. So far as could be determined . . . the action of alcohol upon the circulation was nil." It therefore seemed worth while to determine whether or not alcohol produces such a reflex stimulation of the circulation when administered in irritating concentrations, and whether such stimulation will justify the use of alcohol as a circulatory stimulant.

Since the present investigation is concerned solely with the reflex effects of alcohol, only the literature which deals with the action of concentrated solutions need be considered. And since not infrequently toxic doses were employed, attention will be limited to those circulatory changes which occurred shortly after administration.

ANIMAL EXPERIMENTS: I. HISTORICAL

Zimmerburg[3] carefully excluded all outside factors which might influence blood pressure or heart rate.

* From the Department of Pharmacology, Columbia University, College of Physicians and Surgeons, and the Medical Service of the Roosevelt Hospital.

1. Dixon: Manual of Pharmacology, Ed. 3, London, 1912.
2. Cabot: Med. News, 1903, lxxxiii, 145; Boston Med. and Surg. Jour., 1903, cxlix, 93.
3. Zimmerburg: Untersuchungen über den Einfluss des Alkohols auf die Tätigkeit des Herzens, Dissert., Dorpat, 1869.

He concluded from his experiments on dogs and cats that the administration of strong alcohol by stomach tube did not produce a reflex rise in blood pressure or an acceleration of the heart.

Dogiel[4] and Ronci and Salvioli[5] found that when concentrated alcohol was administered to dogs by stomach tube, a rise in blood pressure occurred. As Abel[6] has pointed out, this effect was due not to the alcohol but to the movements of the animal.

Gutnikow[7] reported that strong alcohol produced a well-marked but transitory rise in blood pressure. A similar increase in pressure and comparable changes in the gastric mucosa followed the injection of 10 per cent. silver nitrate into the stomach. He concluded that the rise in both instances was reflex and was the result of irritation of the gastric mucous membrane.

Rosenfeld[8] concluded that alcohol did not raise the blood pressure either reflexly or after its absorption.

According to Dixon,[9] concentrated solutions of alcohol introduced into the stomach increased blood pressure and accelerated the pulse. These effects were partly reflex, partly central, in origin, for even dilute alcohol produced an immediate heightening of the blood pressure.

Brooks[10] administered the alcohol by gastric fistula to unanesthetized dogs. He could determine no evidence of reflex effect on blood pressure or heart rate. When the alcohol was poured directly into the mouth, there occurred a sharp rise in blood pressure, the heart rate remaining constant or becoming slower. This effect lasted from five to ten minutes, and then the pressure returned gradually to the original level.

Fig. 1.—Decerebrate cat. Upper tracing, blood pressure. Lower tracing, respiration. Upstroke = inspiration. At the arrow, 2 c.c. per kilogram of 50 per cent. alcohol were injected into the stomach. Six minutes elapsed between Segments 1 and 2, and five minutes between 2 and 3.

II. EXPERIMENTAL

In the course of a study of the action of alcohol on respiration, the effect of alcohol on blood pressure was regularly recorded. The animals used in the experiments were cats. To insure intimate contact betwen the alcohol and the gastric mucosa, the animals were not fed on the day of the experiment. The cats were etherized and decerebrated. Blood pressure was taken from the carotid, and the alcohol was administered by means of a stomach tube which was tied into the esophagus. Respiration was recorded by the Cushny plethysmograph.[11] In the twenty experiments performed, alcohol in concentrations of 10, 25, 50 and 95 per cent. was administered. The doses varied from 0.5 c.c. to 5 c.c. per kilogram.

In no instance was there any marked change in heart rate or blood pressure within half an hour of the administration of the alcohol. A typical tracing is shown in Figure 1. The upper curve is the blood pressure; the second curve represents the respiration, the upstroke occurring during inspiration. At the point indicated by the arrow, 2 c.c. per kilogram of 50 per cent. alcohol were injected into the stomach. There was no marked change in the blood pressure during the first fifteen minutes; then a very slight fall occurred. Neither the rate nor the depth of breathing was markedly changed. The tracing moved upward as a whole because the volume of the animal within the plethysmograph was increased by the volume of alcohol injected. At necropsy an hour later, the gastric contents consisted of a little clear fluid which smelled strongly of alcohol. The mucous membrane was pale and tough and did not show any signs of active hyperemia.

The introduction of small quantitites of water at room temperature did not influence the blood pressure curve, nor did the introduction of an emulsion of oil of peppermint in water.

CLINICAL OBSERVATIONS

The reports dealing with the clinical use of alcohol are numerous, and show the same disparity that has been found in the literature of the animal experiments. Many of the observers neglected to exclude rigidly outside disturbing factors, so that it is impossible to ascertain whether the changes in the circulation were due to the alcohol or to some extraneous cause. For this reason the reports of Lichtenfels and Fröhlich,[12] Marvaud,[13] Parkes,[14] and von Jaksch[15] are discredited.

Other investigators experimented on themselves—a method of investigation which is subject to serious error. Thus Weisenfeldt[16] found that in one of his experiments, 75 c.c. of sherry raised his blood pressure from 140 to 190 mm. Hg. His conclusions are not justified because of the large variations in his normal pressure, and because he used a von Basch sphygmomanometer. Bachem[17] found that small amounts of alcohol, in the form of wine or diluted sprits, raised his blood pressure. The effect reached its maximum in half an hour, and had wholly disappeared thirty minutes later. The effect varied directly with the concentration of the alcohol employed. Because he failed to obtain a reflex stimulation of the circulation when he drank mustard water, he argued that the rise in pressure after alcohol was not of reflex origin but was due to an improved action of the heart. There was no uniformity in the effect on the heart rate, and there was no relation between the pulse rate and the blood pressure.

Kochmann[18] obtained results almost identical with those of Bachem, but ascribed the change to a redis-

4. Dogiel: Arch. f. d. ges. Physiol., 1879, xix, 340.
5. Ronci and Salvioli: Studio critico-sperimentale intorno ad alcune particolarita dell' azione fisiologica dell' alcool, Modena, 1875.
6. Abel: Physiological Aspects of the Liquor Problem, New York, 1903, ii, 1-167.
7. Gutnikow: Ztschr. klin. Med., 1892, xxi, 153.
8. Rosenfeld: Der Einfluss des Alcohols auf den Organismus, Wiesbaden, 1901.
9. Dixon: Jour. Physiol., 1906-1907, xxxv, 346.
10. Brooks, Clyde: The Action of Alcohol on the Normal Intact Unanesthetized Animal, THE JOURNAL A. M. A., Jan. 30, 1910, p. 372.
11. Cushny and Lieb: Jour. Pharmacol. and Exper. Therap., 1915, vi.
12. Lichtenfels and Fröhlich: Denkschr. d. kaiserl. Akad. Wien. (Math.-Naturw. K.), 1852, iii, Part 2, 133.
13. Marvaud: L'alcool, son action physiologique, Paris, 1872.
14. Parkes: Proc. Roy. Soc. London, 1873-1874, xxii, 172.
15. Von Jaksch: Der Weingeist als Heilmittel, 1888, p. 23, Congress, Wiesbaden.
16. Weisenfeldt: Arch. f. d. ges. Physiol., 1898, lxxi, 60.
17. Bachem: Arch. f. d. ges. Physiol., 1906, cxiv, 508.
18. Kochmann: Arch. Internat. Pharm. Therap., 1905, xv, 443.

tribution of the blood and an indirect stimulation of the heart.

Cook and Briggs[19] concluded from very careful study that any rise in blood pressure observed after alcohol was solely reflex in origin.

Dixon[9] reported that concentrated alcohol quickened the heart; dilute alcohol had no such effect. If the concentrated alcohol was retained in the mouth for a few seconds only and then spatt out, the effect quickly passed off, but if it was taken into the stomach the acceleration was prolonged for half an hour or more. A similar but less efficient stimulation occurred after swallowing other substances, such as mustard, essential oils, etc.

According to Bouvier,[20] Zimmerburg,[3] Martin and Stevens,[21] Wendelstadt,[22] Jaquet and von der Mühll,[23] and John,[24] alcohol produced no significant change in blood pressure or heart rate unless large doses were employed. Then alcohol acted as a circulatory depressant.

TECHNIC

The observations were made in the medical wards of the Roosevelt Hospital. The patient who was the subject of the investigation was either placed in a quiet room off the ward or was surrounded by screens so that outside disturbances were reduced as much as possible. He was made comfortable and was usually almost flat in bed. The method of procedure was outlined to him in order that the mental factor might be minimized. For the determination of the blood pressure an aneroid sphygmomanometer and the Janeway leather cuff, 13.5 cm. in width, were used. The aneroid was frequently tested with a standard mercury manometer, and any necessary corrections were made. The blood pressure was taken by the Korotkoff[25] method, a Bowles stethoscope being applied over the brachial artery about 1 cm. below the lower end of the cuff. Systolic blood pressure was read off at the moment when the first sounds were heard as the pressure within the apparatus was falling. The beginning of the fourth phase (that is, the sudden dulling of the sounds) was regarded as coincident with diastolic pressure. To eliminate changes in rate accompanying respiration, the radial pulse was counted for a full minute with a stop-watch. Respiration was also counted in the same way to check the pulse. Blood pressure, pulse and respiration were taken every five minutes until a constant had been obtained. The alcohol was then given and the readings again taken at the same intervals for about an hour. In all experiments the alcohol was administered in the form of whisky. The doses employed were usually small, either 5 or 10 c.c., though the effect of larger doses was also noted. The smaller doses were selected in order to prevent the possibility of enough alcohol accumulating in the blood to exert a direct action on the central nervous system and on the circulatory organs. Since it was desired to produce a reflex effect, the whisky was generally administered undiluted. In some cases, whisky diluted with one, two, three, or four volumes of water was employed.

Needless to say, none but those not averse to the use of alcohol were requested to lend themselves to the investigation.

In all, forty-three observations were made on twenty-one different patients. Among the diseases for which these patients were being, or had been, treated were typhoid, pneumonia, acute articular rheumatism, malaria, chronic nephritis, cirrhosis of the liver, arteriosclerosis, myocarditis, chronic endocarditis, malignant endocarditis, exophthalmic goiter, hysteric paraplegia, sarcoma of the femur, and diabetes.

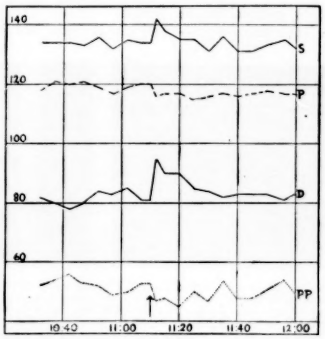

Fig. 2.—Patient S. S., August 28. At the point indicated, 5 c.c. of undiluted whisky were administered. In this and the following figures S = systolic blood pressure, P = pulse rate, D = diastolic pressure, PP = pulse pressure. Time is written along the abscissa. Heart rate per minute and blood pressure in mm. Hg are written on the ordinate.

EXPERIMENTAL

Hermann,[26] and Mayer and Pribram[27] reported that the introduction of water into the stomach caused a reflex increase in blood pressure and pulse-rate. Five experiments were therefore made in order to determine whether or not the swallowing of a non-irritating fluid had any effect on the circulation.

The patients were given cold water in doses varying between 5 and 20 c.c. In no instance was there an appreciable change in heart rate, systolic, diastolic, or pulse pressures.

The effect of 5 c.c. of undiluted whisky was studied on fourteen patients. Six of these experiments were negative, that is, there was no marked change in systolic, diastolic or pulse pressures, or in heart rate. Two of these patients suffered from circulatory disease and one from diabetes; two were active typhoids. The sixth subject was a nervous Hebrew suffering from sarcoma of the femur. On physical examination his superficial and deep reflexes were hyperactive; it was, therefore, surprising that so irritating a drug as whisky failed to influence his circulation.

Eight cases showed a small but demonstrable rise in blood pressure. This group included convalescent typhoid, nephritis, exophthalmic goiter, malaria and hysteric hemiplegia.

Figure 2 illustrates the effect of 5 c.c. of whisky on the patient suffering from exophthalmic goiter. It will be noted that the stimulation is exceedingly transient and lasts less than twenty minutes; that the maximal rise in systolic pressure occurs almost at

19. Cook and Briggs: Johns Hopkins Hosp. Rep., 1903, xi, **451.**
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25. Korotkoff: Cited by Hirschfelder, Diseases of the Heart and Aorta, J. B. Lippincott Company, Philadelphia, 1910.
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once, that the diastolic pressure is raised more than the systolic, so that the pulse pressure is decreased. The pulse rate remains practically unchanged. It should be pointed out that this case represents the most marked effect which followed the administration of 5 c.c. of whisky.

The reaction of the active typhoid cases to these doses of concentrated alcohol was, on the whole, disappointing.

TABLE 1.—FIRST OBSERVATION ON G., AUGUST 20

Time	Systolic Pressure	Diastolic Pressure	Pulse Pressure	Heart Rate	Notes
2:33	119	68	51	80	
2:38	118	66	52	77	
2:43	115	65	50	78	
2:48	118				
2:49	116	68	48	77	
2:53	118	69	49	79	
2:55	...	..	..	..	Whisky, 5 c.c., undiluted
2:56	130	75	55	80	
3:00	127	76	51	76	
3:05	121	74	47	81	
3:10	119	75	44	81	
3:15	118	72	46	83	
3:20	115	68	47	83	
3:25	117	66	51	79	

Table 1 is a record of the first observation which was made on one of these typhoids during his convalescence from the primary attack. Five c.c. of undiluted whisky caused an increase in the systolic and diastolic pressures with a decrease in pulse pressure. The heart rate was slightly increased. That is, there was a small but distinct stimulation of the circulation.

TABLE 2.—SECOND OBSERVATION ON G., AUGUST 25

Time	Systolic Pressure	Diastolic Pressure	Pulse Pressure	Heart Rate	Notes
10:48	111	62	49	75	Patient apathetic
10:53	112	64	48	73	
10:58	111	66	45	73	
11:03	110	65	45	73	
11:08	110	67	43	72	
11:13	113	65	48	71	
11:18	112	64	48	68	
11:23	111	66	45	67	
11:28	111	67	44	68	
11:30	111	65	46		
11:33	...	..	..	..	Whisky, 5 c.c., undiluted
11:34	114	72	42	81	
11:38	112	72	40	77	
11:43	106	73	33		
11:45	109	72	37	74	
11:48	114	67	47	78	
11:50	111				
11:54	108	66	42	80	
11:58	114	66	48	79	
12:03	111	..	..	77	
12:06	112				
12:08	116	68	48	74	
12:13	114	65	49	76	
12:18	114	..	..	76	
12:22	112				
12:24	111	64	47	75	Restless
12:28	114	68	46	76	
12:33	113	68	45	77	
12:38	111	66	45	77	

The day after this observation was made, the patient had a recrudescence, and on the fourth day of his secondary illness another determination was undertaken (Table 2). At this time the patient was apathetic, looked exceedingly ill, and had a high temperature. Five cubic centimeters of whisky now produced no change in systolic blood pressure but raised the diastolic. As a result, the pulse pressure was increased.

In the first experiment there was a small but distinct stimulation. The condition of the patient, however, was such that he required no circulatory stimulation. The second observation was made at a time when circulatory stimulation was called for, yet alcohol did not produce any improvement; in fact, it actually decreased the efficiency of the circulation. Indeed, it would seem from this and other experiments that in the presence of severe toxemia, alcohol loses its power to raise blood pressure reflexly.

The effect of 10 c.c. of undiluted whisky was more pronounced than that following the ingestion of half this amount. While it is true that in a few cases the changes induced were comparatively slight, the effect was nevertheless more constant than in the series just described. Thus, some signs of reflex stimulation were present in all the patients studied. As with the smaller doses, so with the larger, the response of the typhoids was less than that of any of the other patients, and the most marked stimulation occurred in the patients showing exaggerated reflexes. Figure 3 represents the response of the patient S. S., whose reaction to 5 c.c. of whisky is illustrated in Figure

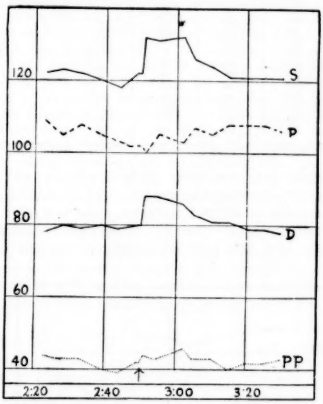

Fig. 3.—Patient S. S., September 1. At the point indicated, 10 c.c. of undiluted whisky were administered.

2. The records were taken September 1 and August 28, respectively. During the interval, the condition of the patient had not improved. A glance at the charts shows that the effects are similar in kind and differ only in degree.

Figure 4 shows the effect of 10 c.c. of whisky administered to the same subject September 26, at which time the patient was much less nervous, had gained in weight, and was very much better in every way. The increase in pulse rate may be accounted for by the excitement incidental to her discharge from the hospital later in the day. With the increase in the stability of the central nervous system and the absence of hyperactive reflexes, the effect of the alcohol is so slight that for all practical purposes it may be disregarded.

In chronic alcoholics the response to strong solutions of alcohol is distinctly less than in those who use the drug in moderation. Thus, in the experiment recorded in Table 3, 20 c.c. of undiluted whisky produced only a very slight change in the circulation. The patient ordinarily drank from ten to fifteen whis-

kies a day, and presented a typical picture of chronic alcohol poisoning.

A number of patients objected to the straight whisky because of the excessive irritation of the mouth and throat which it produced. The drug was therefore

TABLE 3.—OBSERVATION OF R., AUGUST 8

Time	Systolic Pressure	Diastolic Pressure	Pulse Pressure	Heart Rate	Notes
2:06	222	128	94	88.5	
2:08	220	128	92		
2:13	222	128	94	89	
2:16	222	129	93		
2:21	221	126	95	86	
2:24	220	128	92	86	
2:29	222	127	95	86.5	
2:31	221	128	93		
2:37	223	127	96	89	
2:39	222	129	93	88.5	
2:52	221	128	93	87	
2:55	221	128	93		
3:02	223	129	94	87.5	
3:04	223	129	94		
3:06	....	....	....	....	Whisky, 20 c.c.
3:09	228	135	93	85.5	
3:11	230	135	95	85	
3:16	225	133	92	87	
3:18	223	133	90	87	
3:23	226	133	93	88	
3:27	229	133	96	86.5	
3:32	226	131	95	85	
3:34	228	132	96	86.5	
3:40	228	132	96	88	
3:42	226	132	94		
4:06	224	126	98	88.5	
4:08	222	127	95		
4:13	223	126	97	89	
4:16	221	128	93		
4:20	221	129	92	90	
4:23	221	128	93	89	

diluted with one, two, three, or four volumes of water. The effects following the ingestion of 5, 10, 20 or 30 c.c. of whisky so diluted were very much less marked than when the same quantity of straight whisky was taken. In fact, one part of whisky to four of water,

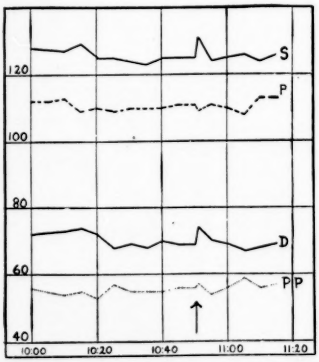

Fig. 4.—Patient S. S., September 26. At the point indicated, 10 c.c. of undiluted whisky were administered.

making about 12 per cent. solution, is apparently non-irritating and caused no change in pulse rate or blood pressure.

SUMMARY

From these experiments it is evident that small doses of undiluted whisky cause a reflex effect on the circulation in a certain percentage of the patients. It seems probable that this reflex action will explain the so-called stimulation which has been reported to follow alcohol, but which has been ascribed to a direct action of this drug on the circulation.

The reflex is most evident in those cases with hyperactive superficial and deep reflexes, least evident in those who are apathetic as a result of bacterial toxemia. It is more marked in moderate users of alcohol than in those who use alcohol to excess. This is probably due to the protective secretion of mucus which is present in alcoholic gastritis. The reflex is elicited only by irritating concentrations of

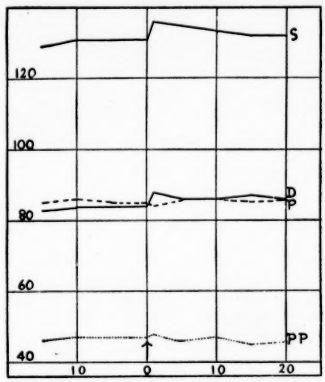

Fig. 5.—Composite of all the observations made.

whisky. Well-diluted whisky causes practically no changes in the circulation before absorption. The degree of response varies more or less directly with the degree of irritation induced; that is, with the dose and the concentration.

Figure 5 is a composite of all the observations that were made, and serves to illustrate the reflex effect on the circulation of the various doses of whisky in the several concentrations. The changes produced in the heart rate are so small that they are well within the normal fluctuations. The systolic blood pressure is raised only 5 mm. The maximum is reached within the first minute, and then the pressure declines so that it reaches normal in less than half an hour. The diastolic pressure is also raised, proportionately less than the systolic, but the return to the original level is very much slower. As a result, the pulse pressure, which was temporarily increased immediately after the whisky was swallowed, is permanently decreased. That is, the pulse after a fleeting increase in size becomes smaller.

In some individual cases the decrease in pulse pressure is brought about by a disproportionate rise in the diastolic pressure as well as by its comparatively slower decline.

From these investigations it is apparent that alcohol does not stimulate the circulation either by increasing the heart rate or by raising the blood pressures. The advocates of the use of alcohol, while admitting the truth of the foregoing, may claim that whisky improves the circulation in some other fashion. Thus, this drug may increase the work done by the heart or it may increase the velocity of the blood flow or it may improve the efficiency of the heart as a pump.

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An approximate idea of the effect of whisky on these factors may be obtained by Tigerstedt's[28] formula:

P. P. × P. R. = Velocity
Systolic P. × P. R. = Work

Table 4 shows that the changes induced by whisky in these three factors are comparatively insignificant. It is interesting to note that though the velocity of the flow and the work of the heart are very slightly increased, the efficiency of the heart as a pump is decreased.

TABLE 4.—CHANGES INDUCED BY WHISKY

	Velocity	Work	Efficiency
15 minutes before alcohol.....	3,910	10,965	35.7
10 minutes before alcohol.....	4,042	11,266	35.9
5 minutes before alcohol.....	3,995	11,135	35.9
Alcohol			
1 minute after alcohol.....	4,032	11,424	35.3
5 minutes after alcohol.....	3,956	11,610	34.1
10 minutes after alcohol.....	4,042	11,438	35.3
15 minutes after alcohol.....	3,825	11,220	34.1
20 minutes after alcohol.....	3,956	11,352	34.9

CONCLUSIONS

From these experiments it is evident that even though whisky may raise for a few moments the systolic blood pressure, and thus act as an apparent circulatory stimulant, it can not be regarded as a true circulatory stimulant, inasmuch as it decreases cardiac efficiency, raises disproportionately the diastolic pressure, and lowers pulse pressure.

THE TREATMENT OF PSORIASIS WITH VACCINES

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The object of this paper is to call attention to the possible infectious origin of some cases of psoriasis, in the hope that it may direct attention to a new etiologic factor of this chronic and prevalent disease.

I wish to report three cases in full in the order in which I treated them. The treatment of the first two with vaccines was an accident and the last case reported was treated in this manner because the first two had responded so well.

REPORT OF CASES

CASE 1.—Miss F., aged 32, psoriasis for three years on arms, legs, neck and chest. Patient was very miserable, had to wear high neck and long sleeves all the time. Couldn't sleep at night. Examination showed a gastric hyperacidity and catarrhal enteritis. I started treating and washing her stomach and using local treatment for the psoriasis. As the patient's general health improved the psoriasis improved but it did not disappear.

Five weeks after beginning treatment the patient caught cold and developed a tonsillitis and bronchitis. The psoriasis rapidly became worse and in three days it was as bad as it had ever been. I put her on an autogenous vaccine made from a culture from the tonsils and had the tonsils lanced. I had to stop treating her stomach as her throat was too sore to allow the passing of a tube, and the bismuth, sodium bicarbonate and magnesium oxid that I had been giving her irritated her throat. I gave her a dose of vaccine every three days and after the third dose the psoriasis was better than it had been since her arrival in Hot Springs.

In two weeks the psoriasis had entirely cleared up and in three weeks from the time that I began giving her vaccines she left for home entirely well. Miss F. left here March 1, 1914, and I received a card from her in November, 1914, saying that she had had no further sign of trouble.

When it is remembered that this patient was not nearly well after having had her stomach treated for five weeks, that the psoriasis became suddenly much worse following tonsillitis, and that an autogenous vaccine and draining of the tonsils caused an immediate improvement (in the psoriasis) and an ultimate elimination of it, it seems that only the vaccine could have been responsible.

CASE 2.—Mr. B., aged 50. Patient had arthritis, aortic regurgitation, lumbago and psoriasis. Patient was sent here under directions of his home doctor and called on me for bath directions. The patient would take nothing except what his home physician had prescribed and he had innumerable pills and capsules to be taken under various conditions.

The patient took his baths and medicine as directed for four weeks with no improvement and finally, after corresponding with his physician, I obtained permission to give him vaccines for his arthritis. I put him on a mixed vaccine containing *Streptococcus pyogenes* 200,000,000; staphylococci combined 800,000,000, and *Micrococcus catarrhalis* 100,000,000 to the cubic centimeter. The patient at this time had a psoriasis on arms, legs, head and face. He had lost a great deal of his hair and made a very unprepossessing appearance, but I was giving him the vaccine for his arthritis and was not thinking of its doing the psoriasis any good.

Patient remained here sixteen days after the beginning of the vaccine treatment and was then called home. When he left the psoriasis had stopped scaling and itching and was entirely eliminated except for the erythematous spots where the lesions had been. Patient left here in June and reported to me in December that the psoriasis had never reappeared, although he had not been taking any care of himself and had been working every day.

Now this patient had continued taking his medicine from his home doctor, and the only change made in his treatment was the addition of vaccines, so I think that the vaccines were directly responsible for his improvement.

CASE 3.—Mr. M., aged 38. Patient had had psoriasis for four years over the extensor surfaces of his arms, but about May, 1914, he became much worse with an extension of the disease to his legs and body, his back being especially badly broken out with large silvery patches, some of them the size of a dollar. He was otherwise normal in every way and had been taking the baths here and local treatment for seven weeks before I saw him.

In view of the two previous cases I put him on the same mixed vaccine that I had given to Patient 2 (Mr. B.). I took him off all local treatment and gave him 0.5 c.c. of vaccine the first day, followed by 0.75 c.c. two days later and 1 c.c. every three days from that on. I also gave him a light bath with a cool shower bath following, each day.

He began to look and feel better within ten days and left here in five weeks without a blemish.

In view of the preceding experiences I am now giving vaccines a more extensive test in all cases of psoriasis and I hope soon to be able to make a report on the subject that will mean something.

I know that the objection will be raised that we have always been able to control most cases of psoriasis by medicines and diet before vaccines were ever heard of, but we will remember we never treated any of these cases successfully in which we did not increase elimination, correct digestion and in every way attmept to improve the patient's general condition, and perhaps the general toning up that a great many of these patients received only helped them to build up more quickly an immunity to an infectious process.

28. Tigerstedt: Lehrbuch der Physiologie des Kreislaufs, Leipzig, 1893.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 828)

X

B. DEPRESSANTS: 6. HYDROCARBON NARCOTICS—(Continued)

GENERAL ANESTHETICS

CHLOROFORM AND ETHER GROUP—(B)

Every one who attempts to administer a general anesthetic at this period should have had a course of training in this special branch of medicine. In addition, the general practitioner would do well to read a fairly comprehensive treatise on the subject, such as that of Hewitt. Inasmuch as the general practitioner is called on at times to assume charge of patients who have been anesthetized, however, even though he may not have administered the anesthetic, this discussion will include a consideration of the more salient points.

It is remarkable that ether and nitrous oxid were known long before they came into use as general anesthetics. Ether was prepared by Valerius Cordus in 1540—three hundred years before its use in anesthesia. Humphrey Davy in 1805 observed that nitrous oxid relieved an aching tooth, and suggested the use of the gas in surgery, but the suggestion went unheeded. Nitrous oxid was first used in dentistry by Horace Wells of New Haven, in 1844. He attempted to give a public demonstration in the Harvard Medical School, but this proved a fiasco, subjecting him to ridicule, and later he killed himself.

"Ether parties" were popular about a century ago. Crawford W. Long, a physician of Georgia, observed that he and his companions sustained small hurts without feeling the pain while under the influence of ether; this led him to perform the first surgical operation during ether anesthesia in 1842. Long took little trouble to make the results of his experience widely known, and the first public operation under ether was performed by Warren at the Massachusetts General Hospital, Oct. 17, 1846. William G. T. Morton, a pupil of Wells, having learned of the action of nitrous oxid, had sought aid in its preparation from a chemist named Jackson, who had suggested the use of ether. Morton adopted the suggestion and attempted to keep the use a secret for personal gain, but he spent the remainder of his life in advocating and popularizing the use of ether.

Flourens announced in 1847 that chloroform acts much like ether on the lower animals, and Simpson of Edinburgh used chloroform as a general anesthetic in the same year.

Ether and chloroform were both used with little skill at this time, and Snow published the first comprehensive work on the subject in 1858. Ethyl chlorid anesthesia was known about as early as that of ether, but it attracted little attention for fifty years. A few years ago an effort was made to popularize ethyl chlorid, which was claimed to stand between ether and nitrous oxid in relative safety. This is not the case, and the use of ethyl chlorid is now limited to special cases.

Chloroform was the safer anesthetic at first owing to the want of understanding of the actions of ether. For many years a mixture of alcohol, chloroform and ether was popular in many countries. The use of ether has increased steadily, and at present it is employed to a far greater extent than chloroform for general anesthesia. Chloroform still has a distinct field of usefulness, however, and with the swing of the pendulum in favor of ether, it seems that certain disadvantages of the latter may be overlooked.

The administration of a general anesthetic is always attended with danger, and the physician realizes that he may be called on to defend his choice of anesthetic should it be his misfortune to have a patient succumb during its administration. It always appears easier to defend the choice of that which is sanctioned by common practice than that which is indicated by careful study of all the conditions present in any given case, when such conditions happen to indicate the use of the less popular anesthetic; therefore physicians tend to fall into the habit of selecting ether on all occasions regardless of whether it is best in a given case or not.

While statistics indicate pretty clearly that proportionally more deaths occur during the administration of chloroform than of ether, we are in need of a more comprehensive study with statistics of the ultimate dangers, including deaths which are indirectly attributable to the anesthetic. The "late chloroform deaths" have now become fairly well known, but many of the deaths from pneumonia which are due to the administration of ether are not reported as ether deaths. Ether is administered for minor surgical operations by professional anesthetists in many thousands of cases in which the patient, on regaining consciousness after the operation, passes from the anesthetist's care. If pneumonia develops several days later, the anesthetist may not so much as know that death resulted.

The following points are to be considered when choosing an anesthetic: sex and age (these are not usually very important, except where atheromatous arteries are to be expected); temperament; habits (alcoholism, etc.); general physique, obesity being unfavorable for chloroform and ether; respiratory and circulatory systems (difficulties present or anticipated in the respiration increase the risks of anesthesia). Morphinists are tolerant of chloroform and ether, but a dose of morphin administered to a morphinist just before the administration of an anesthetic makes this smoother. The mere bulk of the anesthetic is of importance on the battle-field, or where a sudden catastrophe demands the transportation of anesthetics for large numbers with insufficient facilities. In such cases nitrous oxid becomes impossible, and chloroform or ethyl chlorid is preferable. The time consumed in administering ether, especially in very hot weather and following battles, is also a great objection, and chloroform or ethyl chlorid is to be preferred on that account.

The actions on the central nervous system of chloroform, ether and ethyl chlorid resemble those of alcohol qualitatively in their essentials and need not be described in detail. It is of the first importance that these substances depress the higher parts of the brain and then the cord, while the medullary centers are affected to a much less extent.

The stage of excitement is important, but it is so commonly seen that it does not require detailed discussion here; it is important where high blood-pres-

* This is the tenth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

sure is to be feared, and in such cases anesthesia is frequently induced with chloroform or nitrous oxid and continued with ether. At present it is customary in many institutions to induce anesthesia with nitrous oxid as a routine measure, and then proceed with ether.

With the administration of ether to man there is at first a sensation of suffocation and disturbance of the special senses, which are intensely disagreeable; chloroform is much less so. Excitement comes on after consciousness is disturbed. Sensation is commonly lost before the loss of motion in the voluntary muscles, and during this stage slight surgical operations, requiring but a minute or two, may be performed if muscular relaxation is not necessary, where there is no probability of severe injury which would give rise to injurious reflexes. With increasing depth of narcosis the reflexes are abolished, the winking reflex from touching the cornea being among the last to disappear, but not the very last.

During major surgical operations the effort is usually to maintain that depth of anesthesia in which the corneal reflex is abolished, since this suffices to secure muscular relaxation and the avoidance of severe reflex injury to the central nervous system which occurs with insufficient depth of anesthesia. On the other hand, if this stage is exceeded materially, the respiratory and vasomotor centers suffer and the respiration stops. With chloroform the heart stops almost immediately thereafter; with ether there is usually a slightly longer interval, during which the opportunity for resuscitation is greater than with chloroform.

The vasomotor and respiratory centers are not markedly depressed during a moderately prolonged anesthesia with ether, but the breathing is slower than normally, though it should be quite regular.

It is customary to discuss the action of the anesthetics on the respiratory and vasomotor centers separately, but the respiration and the circulation are so closely interdependent that it is impossible to injure one severely without injuring the other.

The respirations may be temporarily inhibited reflexly from the mucous membrane of the nose before the stage of deep anesthesia is reached, just as it may be in health by the inhalation of any irritant gas, but this does not occur during deep anesthesia. Irritation of the mucous membrane of the trachea may also give rise to persistent reflex inhibition of respiration, and this has caused death in some instances. When the respiration ceases early in the administration of anesthetics the respiratory passages should be examined carefully to insure that they are not the seat of obstruction or irritation from any cause. Of course, careful attention should be given to the air-passages before beginning the anesthesia, for it is obvious that interference with respiration in any way must prove dangerous. Imperfectly aerated blood causes a rise of blood-pressure, increasing the resistance against which the heart must contract, while it affords diminished nutrition to the heart, thus throwing an additional burden on it while it is enfeebled by lack of nutrition; this circulatory disturbance results in further injury to the respiratory center, establishing a vicious circle.

The circulation is subject to so many influences that it is difficult to determine in a given case the mechanism by which it may be disturbed. It is well known that ether, when administered properly for a moderate length of time, does not lower the blood-pressure.

The actions of anesthetics on the vasomotor centers have been the subject of much study but without any agreement, and we cannot determine whether the vasomotor center or the heart is responsible primarily for the fall which follows chloroform even with the greatest care. It seems probable that the heart and the vasomotor centers are but links in the chain which may be injured at either point.

With ether the blood-pressure may remain constant for several hours, but with the most careful administration of chloroform the pressure falls progressively, during which the heart evidently suffers.

The danger to the heart during the administration of chloroform is admitted by all, but this danger is variously explained. According to a view which has gained some acceptance, the heart becomes hyperexcitable and ventricular fibrillation results, with immediate failure of the circulation. It is maintained that overdosage has nothing to do with this effect, but on the contrary, that excessive caution has led to insufficient administration which favors hyperexcitability with the danger of fibrillation, whereas with the continuous administration of a sufficient amount of chloroform the ventricle is depressed so that hyperexcitability and the resulting fibrillation are impossible. The supporters of this view state that with a growing and excessive caution the number of deaths during the early part of chloroform anesthesia shows a marked increase.

It is maintained that anything which interferes with a smooth and uniform administration of chloroform increases the danger of ventricular fibrillation and that vagus inhibition is a source of danger only in so far as it interferes with a uniform condition of the circulation.

Every one admits the desirability of a smooth anesthesia, but it is not always attainable even with the greatest care.

The heart is subject to direct injury from the anesthetics in addition to the indirect through circulatory changes, chloroform being far more injurious directly than ether. The action of chloroform is dangerous at three different stages: soon after the inhalation is begun, and it may be before consciousness is lost; during the regular course of anesthesia; and one or several days after the anesthetization.

According to another view which has found wide acceptance, the source of danger to the heart early in the course of chloroform anesthesia is due to a combination of the direct action on the heart and the indirect through the vagus center as follows: When chloroform is carried to the heart in somewhat greater concentration than is desirable it causes the heart to become more susceptible to vagus control, and at the same time the vagus center is rendered hyperexcitable; at this time the irritation of the mucous membrane by the concentrated chloroform vapor sets up a strong reflex inhibition through the vagus center, causing the heart to stop. Vagus stimulation causes only a temporary stoppage of the normal heart, but when it pauses under the condition just cited the dilated chambers are filled with blood containing chloroform vapor in high concentration, and this vapor acting on the heart paralyzes it rapidly. It must be understood that this early danger to the heart may occur before the patient even loses consciousness, for one is prone to think that there is no danger so long as the reflexes are not abolished and the respiration and pulse are good. This danger is avoided by care

in seeing that the chloroform is not inhaled in too great concentration and that the patient is not allowed to inhale too much of it when he begins suddenly to breathe deeply, as he may after a pause in the respiration.

The celebrated Hyderabad Commission overlooked this source of danger because they began their experiments by anesthetizing their dogs in a box where they were not easily observed. Even though they lost about 6 per cent. of their animals during the induction of anesthesia they were content to attribute all of these deaths to faulty technic or accident and did not investigate the cause further. In order to prove the real danger of concentrated vapor before consciousness is lost a later investigator succeeded in killing one-fourth of his dogs in this way intentionally.

Our discussion is not intended for the guidance of the expert anesthetist, who will rarely have any difficulty in avoiding overdosage, but the following experience illustrates the danger when chloroform is employed by those who are unskilled in its use: The medical students of a class who had previously used ether exclusively as the anesthetic in laboratory experiments were directed on one occasion to employ chloroform. Its nature was explained, and *extreme* caution was enjoined. Despite this caution too much chloroform was used with fatal results in nearly every one of the next series of experiments on dogs.

Chloroform causes a nearly constant fall in the blood-pressure, and the heart and respiration may fail rapidly at any stage of the operation, especially if the operation involves severe injury to nerve trunks with resulting reflex injury to the centers. Such injuries are more common with light anesthesia than with that stage where the corneal reflex is abolished.

The following will illustrate the advantages of a proper degree of anesthesia, that is, neither too light nor too deep:

In a series of laboratory experiments it was necessary to remove the entire gastro-intestinal tract of the dog without inducing shock. In the first of the series the anesthesia was only sufficiently deep to prevent the occurrence of pain; in every such experiment, the animal suffered severe shock and seldom showed subsequent improvement; in the remainder of the experiments the anesthesia was much deeper, and in only few of these did shock follow immediately this extremely severe operation.

The third stage of danger to the heart is attended with degeneration, which is not limited to the heart but involves the liver and other organs. While this degeneration is often found at necropsy in such cases, the cause of death is not known, for greater degeneration may occur from various other causes without causing death.

Ether cannot cause sudden death in a manner analogous to that described, early before consciousness is lost, but it may cause death during the operation, for ether is also directly injurious to the heart, though much less so than chloroform. The following laboratory experiment serves to illustrate the great difference in the toxicity of ether and chloroform for the heart. Three frogs' hearts are excised and placed one in Ringer's solution, another in Ringer's solution containing 0.25 per cent. of chloroform, and the third in Ringer's solution containing 2 per cent. of ether. The first heart continues to beat for an hour or more. The one subjected to the action of chloroform ceases to beat within a few seconds; if it be transferred at once to pure Ringer's solution it may possibly be made to beat again, but it is usually found to be permanently paralyzed. The third heart, which is subjected to the action of ether, will usually continue to beat for a few minutes and if transferred at once to pure Ringer's solution will resume regular beats.

This experiment serves to explain why the attempt to resuscitate patients when the respiration ceases after ether is successful more frequently than when the same accident occurs with chloroform. After the respiration ceases with ether the heart is usually capable of beating, whereas after the administration of chloroform the heart is usually so severely poisoned at the time the respiration ceases that it soon ceases to beat. Chloroform is said to be about 250 times as actively toxic to the heart as alcohol if compared in molecular proportions.

While so much stress is usually placed on the action of chloroform on the heart, Hewitt states that in practice the majority of chloroform deaths occurring during operations are due to intercurrent conditions which are often not recognized; these include asphyxial states leading to circulatory failure, swelling of the tissues surrounding the air-passages and interference with the free entrance of air, which may lead to circulatory failure in a susceptible patient.

The kidneys participate in the excretion of chloroform and ether, and frequently suffer injury, especially in the presence of a previous nephritis. Chloroform is much the more irritant, but so much more ether is required for anesthesia that it causes approximately as much damage to the kidney as chloroform.

The liver may also suffer degeneration, as previously mentioned, and the existence of hepatitis is a strong contra-indication for chloroform.

Ether causes a more copious secretion of saliva and also of mucus in the bronchial passages than does chloroform, and the saliva may be aspirated during sleep and give rise to pneumonia. Atropin administered previous to the anesthetic prevents this excessive secretion of saliva and mucus. This also suggests the necessity for oral antisepsis prior to anesthesia.

It is sometimes stated by surgeons that pneumonia follows ether anesthesia only as the result of carelessness, or through too great cooling of the body, but this is not correct; pneumonia may follow an extremely brief and carefully conducted etherization.

Ether, being quite soluble in the saliva, may be swallowed in sufficient amount to cause irritation of the stomach and give rise to nausea and vomiting. It is for this reason that slight nausea and vomiting are more common after ether than after chloroform, but severe and dangerous vomiting is more common after chloroform. The cause of this is not known.

Ether and chloroform are absorbed readily from the mucous surfaces, the rate of absorption during inhalation being proportional to the partial pressure of the vapor in the alveolar air, since the body temperature may be regarded as constant.

It is unnecessary to enter into a discussion here of the concentration of the vapor in the air and in the venous and arterial blood at the time of inducing anesthesia and during its maintenance. However important they are for the anesthetist, they belong to the more advanced study of the subject such as one finds in special treatises.

Cushny found that about 90 per cent. of the chloroform administered was excreted in the expired air during anesthesia, that the exhalation of volatile sub-

stances from the lungs is exactly analogous to their evaporation from aqueous solutions, and that the amount of a given anesthetic thus eliminated in the expired air depends on its affinity for water to a much greater extent than on its volatility. This explains why ether, which is more volatile than chloroform, but also more soluble in water, is retained in the blood more tenaciously.

The amount of ether present in the blood at the end of anesthesia is reduced to about one-half in from five to fifteen minutes, and at the end of two hours there is only about one-fortieth as much in the blood. Ether can be detected in the breath, however, for a day or longer after even a brief anesthetization.

Chloroform also disappears rapidly at first, and is reduced to one-fortieth the original amount in about seven hours, which is a seeming contradiction to what was said of the more rapid exhalation of ether, but the amount of chloroform present at the start was much less, and a small portion of the chloroform is capable of entering into a relatively stable combination with some constituent of the blood.

Buxton states that the administration of oxygen lessens the deleterious effects of chloroform on the different organs.

Ether is sometimes used as an active respiratory stimulant in emergencies, 30 or 40 minims being injected intramuscularly. The effects are sometimes striking, but of course the injections cannot be frequently repeated, and they are of service only in tiding over an emergency.

French surgeons have advised the use of large quantities of ether as an antiseptic in abdominal surgery, but it is difficult to see what special advantage it has for this purpose and certainly it is capable of causing serious injury.

The volatility of ether constitutes a serious objection to its use in extremely hot climates, for it is difficult to maintain smooth anesthesia with it in very hot weather. Its inflammability is less of an objection now that electric lights are so commonly in use.

THERAPEUTIC USES

The principal therapeutic uses of the anesthetics are too well known to require discussion, and unfortunately, we know far too little of the special indications for one or the other of these in a given case.

It is recognized of course that certain conditions serve as a contra-indication for one or the other of these, but we are frequently in the dark regarding other conditions which would undoubtedly serve as contra-indications were they known, for the deaths which occur on the operating-table would not occur if these contra-indications were known and the conditions recognized in those cases.

Ether causes more excitement than chloroform; hence it is contra-indicated where excitement with its attending high blood-pressure is dangerous, but this does not mean that ether cannot be used in such cases after anesthesia has been induced by chloroform or nitrous oxid. Chloroform does undoubtedly serve a most useful purpose in such cases.

Chloroform is certainly strongly contra-indicated where the operation is prolonged, because of the progressive injury to the heart. Ether is probably more dangerous where inflammation of the respiratory passages indicates danger of pneumonia.

(To be continued)

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 831)

XXIII

GERMAN MEASLES (RÖTHELN, RUBELLA)

This is a highly contagious germ disease, most frequently affecting children and youth. It generally occurs in epidemics, but a considerable number of persons exposed to the disease do not acquire it. While the germ has not been discovered, and though it is not known just how it is transmitted, the probability is that the secretions of the nose and throat are the means of spreading the infection. It is doubtful if the eruption or the desquamating epithelium carries the contagium. The stage of incubation is apparently long, averaging perhaps from about ten days to two weeks. The stage of invasion is rarely seen, as when it is first realized that the patient is ill, the eruption is present. The eruption is a maculopapular one, reddish, and rarely confluent. The papules are less raised than in measles; in fact, many points of eruption are purely macules. The color is brighter than that of measles. It occurs first on the chest and face, and then gradually spreads over the body, during the first twenty-four hours. Questioning of the person attacked often shows that there were slight rigors and some backache or headache or feelings of indisposition. The temperature is generally slight, rarely above 100 F.

A diagnostic symptom, enlargement of the postcervical glands, is almost invariably present, and these are found at the time of the beginning of the eruption. The eruption lasts but a few days, gradually fading, and sometimes leaves points of pigmentation or discoloration for some time longer. There may be considerable fine desquamation, or desquamation may be practically absent.

Complications are rare, and although the patient should be confined to the house, the infection is simple, and there are not likely to be any consequences.

It has been stated that the leukocytes are generally increased in number and that eosinophils are absent or diminished during the period of eruption.[8] More recently, Hess[9] found that "in almost all cases of German measles there was a definite increase in the lymphocytes, even preceding the appearance of an exanthem." Hess suggests that this lymphocytosis at the time of the appearance of the rash may serve to differentiate this disease from scarlet fever. Scarlet fever, it will be remembered, shows an increase of polymorphonuclear white cells in the early stages.

This disease requires, ordinarily, no real treatment. Simple cathartics should be given, the diet reduced, and the patient kept indoors until the eruption has disappeared. If the throat is irritated, an alkaline gargle should be used. The usual simple methods of preventing the infection of others should be carried out.

The disease should be made reportable, as it is so often confused with regular measles, and rarely has been confused with a mild scarlet fever. It is more likely to be confounded with various kinds of intestinal or food poisonings that cause eruption.

8. Arch. de méd. exper., November, 1906.
9. Hess, A. F.: German Measles (Rubella): An Experimental Study, Arch. Int. Med., June, 1914, p. 913.

Chicken-Pox; Varicella

This simple, acute, contagious disease, generally very mild, and rarely requiring any medication or treatment, need not be mentioned here except that it is frequently confused with small-pox. In many parts of the United States the frequent occurrence of small-pox necessitates that every physician should be alert to differentiate these two diseases. The different points of diagnosis between mild small-pox and chicken-pox cannot be better stated than in the paper of Dr. H. W. Hill,[10] director of the Division of Epidemiology of the Minnesota State Board of Health. He states that 10,000 cases of small-pox occur annually in Minnesota alone, and that this large number is due primarily to non-vaccination, and secondarily to mistaken diagnoses, allowing the infection of others. Hill quotes statistics to show that in one investigation over a period of twenty-one years there were thirty times as many cases of small-pox and nearly two hundred times as many deaths occurring in the unvaccinated as in the vaccinated. Health boards should ponder this fact, and then act.

He states that several misconceptions of these two diseases are prevalent, namely, that chicken-pox occurs only in children; that the small-pox eruption does not invade the scalp; that the small-pox eruption alone invades the palms of the hands and the soles of the feet; and that chicken-pox lesions are not umbilicated. All of these points of supposed differential diagnosis are incorrect.

The differential points of chicken-pox and small-pox are as follows:

In chicken-pox: The incubation period is at least two weeks. There is no definite history of a previous attack of this disease. A history of successful vaccination within a few years, or a definite history of a previous small-pox causes presumption that the disease is chicken-pox. There is usually no history of a stage of illness before the eruptive stage. The eruption appears in the first twenty-four hours of the disease, beginning on the back, chest or face, and is most profuse on parts of the skin covered by clothing. The eruption appears in successive crops on successive or alternate days, so that various stages of the lesions may be present at one time. The lesions are round and oval, and the margins are not crenated. The eruption passes through the following stages: 1. Macules lasting a few hours. 2. Soft, superficial papules lasting a few hours. 3. Clear, thin-walled, tense vesicles each lasting a few hours (these vesicles may be readily broken and appear cupped or pitted, and the weeping vesicle then quickly becomes crusted). 4. The crusts, lasting a shorter or longer time, depending on the treatment (each crop completes its cycle from macule to crust in from two to four days). 5. Pitting may occur, but the pits are few, superficial, and often oval.

In small-pox: There is an incubation period of from twelve to fourteen days. There is no definite history of a previous attack of this disease, and no history of successful vaccination within from five to seven years. There is an invasion stage of from two to three days with headache, backache, chills, fever, etc. The first signs of eruption are on the third or fourth day after the onset of symptoms, and the eruption begins on the face and wrists, and is most profuse on the skin not covered by clothing, and the palms of the hands and the soles of the feet are often attacked. The eruption develops in one crop, the lesions appearing steadily from twenty-four to forty-eight hours, the face lesions being usually further developed than those on the body. The lesions are round at all stages, and the margins are not crenated; all those of the same stage of development are usually the same size. The lesions occur as flea-bite macules lasting twenty-four hours, and then as papules which feel "shotty" under the finger, also lasting twenty-four hours. The next stage is umbilication of the shotty-feeling vesicles, this lasting from twenty-four to seventy-two hours. Next firm, opaque pustules form, each lasting from four to six days, and this formation of pus is accompanied by what is termed the secondary fever of small-pox. Next, firm crusts appear at about the thirteenth day of the eruption, the fifteenth day from the beginning of the disease. Large, dense scabs form with tenacious, dark-colored plaques, which may last days, or even weeks, if the skin is not properly treated. Later, where there is marked pustulation, deep pitting occurs.

It is essential that chicken-pox cases should be early diagnosed, and that the patient should be isolated. A laxative should be given; the diet should be simple and without meat; warm baths, and powder to prevent itching, represent the only treatment generally required. Older patients should be cautioned, and children should be prevented from picking open the vesicles that occur on the face, thus preventing pitting. Young children should wear celluloid mittens.

10. Hill, H. W.: Journal-Lancet, January, 1912, p. 1.

Scarlet Fever

No other acute infection varies so much in intensity as does scarlet fever. An attack may be so mild as to be entirely overlooked, or so serious as to make it one of the most dangerous of diseases. The activity of the germ of infection varies in different years and in different epidemics, some epidemics being characterized by their mildness and some by their intensity. This cannot be due to the difference in unprotected individuals, but must be due to characteristics of the germ in different years. Epidemics are most likely to occur in the fall and winter, although isolated cases may occur at any time. As the disease occurs most frequently in schoolchildren, and most frequently in the fall, gradually disappearing in the spring and summer, it is quite likely that the seasonal difference is related to its spread in the schools and the attacking of those who are susceptible, while later in the year all of the susceptibles who have been exposed have had the disease; it then gradually disappears, to begin again on the larger influx of susceptibles into the schools in the fall. Fewer persons are attacked by scarlet fever than by measles or whooping cough, which may show a natural immunity or insusceptibility. On the other hand, some families seem to present hypersusceptibility, such families having the disease in the severest form and with a high mortality. All ages and most peoples are susceptible to scarlet fever, but the large majority of deaths, stated at 90 per cent., are in children under 10 years of age. Young babies up to the age of 6 months, as in most other contagious diseases, are not likely to acquire this disease.

Etiology

Until recently it was thought that the erupted and desquamating skin carried the contagium of scarlet fever. Probably, even now, the majority of physicians

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are unwilling to believe that this disease is not diffused by the desquamating scales. It has been long considered proved that scarlet fever was thus caused because clothing or articles in contact with the patient, after being put away and long disused without sterilization, have caused infection of persons who have later come in contact with these articles. The possibility and fact that secretions from the nose and throat could have contaminated these articles has been entirely overlooked.

A specific germ for scarlet fever has not been discovered. While the streptococcus plays a distinct part in this disease, no form yet isolated has been proved to be the cause. That the infective agent occurs in the mouth and throat has been shown by injecting monkeys with scrapings from the tongue in the early stages of the disease.[1] Friedlander[2] has published a review of the streptococcus findings in the throat and in the blood, and the relationship of such streptococci of the disease to prognosis, etc. It has not been shown that the streptococci found in the throat in scarlet fever are different from streptococci that appear in other inflamed and membranous throats. Park[3] believes that streptococci are only a secondary infection in scarlet fever. Kolmer[4] and many others believe that it has not been proved that streptococcus immunization has any value as a prophylactic measure against this disease.

A fusiform bacillus has been found in the throats of scarlet fever patients by Klimenko.[5] He also found this bacillus in the spleen and liver of five out of seven children who had died of scarlet fever. The exact relationship of the bacillus to scarlet fever of course has not yet been determined.

Koessler,[6] after reviewing experimental study in this disease, concludes that "the serum of scarlet fever patients contains specific antibodies for an unknown virus," and that "this unknown virus seems to be present specifically in the cervical lymph nodes." Schultze[7] of New York first described a certain micrococcus which he had found in the throats of scarlet fever patients. It is stated that this micrococcus, which has been termed the "Micrococcus S," has been found in the mouth only in the early stages of the disease, and it is believed that this would prove that scarlet fever was contagious only during the early first stage. The organism was not found in the purulent discharges, or in the blood. While this coccus has been carefully described, it is admitted that it is distinguished at times with difficulty, and Ferry[8] states that it must be differentiated from the *Micrococcus catarrhalis*, the *Micrococcus tetragenus*, the *Micrococcus pharyngis siccus* and from the *Diplococcus intracellularis meningitidis*. It has not been proved that the Micrococcus S is the cause of scarlet fever, or that vaccines made from this germ, or from this germ and streptococci, or from streptococci, have curative action in scarlet fever, or have immunizing powers against scarlet fever.[9]

To sum up, we must declare that the germ of scarlet fever has not yet been discovered; that there is no doubt that the disease is spread by the secretions of the mouth, throat and probably nostrils; that the skin does not spread the contagium except as it becomes contaminated with these secretions; that the streptococcus plays a large part in the clinical course of the disease of scarlet fever, and that a patient may develop an actual septicemia, and this septicemia is frequently the cause of death. It certainly is a frequent cause of complications.

It is thought that scarlet fever is not infrequently caused by the milk of diseased cows, and some epidemics of sore throat with eruption have certainly presented all the marks of scarlet fever. It should be remembered, however, that septic sore throat has been scientifically traced to diseased cows, and that in septic sore throats, scarlatiniform as well as other eruptions not infrequently occur. It is probable that household pets, as cats and dogs, may transmit the contagium of scarlet fever.

The secretions of the mouth that carry the germ of this disease may infect any article that comes in contact with the patient, and this specific germ, whatever it may be, can apparently live for a long time in spite of heat, cold, drying or moisture, and cause infection months, if not years, later.

The incubation period of this disease is shorter than most of the other contagious diseases, and may be as short as one day, with an average of about three days. If the disease does not occur in the course of a week after exposure, the individual will apparently not acquire the disease from that contact.

(To be continued)

1. Jampolis, Mark: Résumé on Infectious Diseases, Am. Jour. Dis. Child., June, 1912, p. 406.
2. Friedlander: Interstate Med. Jour., January, 1913, p. 55.
3. Park: Arch. Pediat., June, 1912.
4. Kolmer, J. A.: Studies of Streptococcus Antibodies in Scarlet Fever with Special Reference to Complement Fixation Reactions, abstr., THE JOURNAL A. M. A., Dec. 9, 1911, p. 1942.
5. Klimenko: Russk. Vrach, xiii, No. 8.
6. Koessler, K. K.: Recent Advances in Our Knowledge of Scarlet Fever, THE JOURNAL A. M. A., Oct. 26, 1912, p. 1528.
7. Schultze: Med. Rec., New York, Dec. 10, 1910.
8. Ferry: Med. Rec., New York, May 23, 1914, p. 934.
9. For some apparently satisfactory results see the Medical Record, New York, May 23, 1914, two papers.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

SEROBACTERINS (See N. N. R., 1915, p. 329).

Cholera Serobacterin, Mulford (Sensitized Cholera Vaccine).—Marketed in packages of three syringes containing, respectively, 500 million, 1,000 million and 2,000 million killed sensitized cholera vibrios suspended in sterile physiologic saline solution.

Meningo-Serobacterin, Mulford (Sensitized Meningococcus Vaccine).—Marketed in packages of three syringes containing respectively, 1,000 million, 2,000 million and 2,000 million killed sensitized meningococci.

Typho-Serobacterin Mixed, Mulford (Sensitized Typhoid Vaccine).—Marketed in packages of three syringes containing, respectively, 1,000 million killed sensitized *Bacillus typhosus*, 500 million killed sensitized *Bacillus paratyphosus* "A" and 500 million killed sensitized *Bacillus paratyphosus* "B"; 2,000 million killed sensitized *Bacillus typhosus*, 1,000 million killed sensitized *Bacillus paratyphosus* "A" and 1,000 million killed sensitized *Bacillus paratyphosus* "B"; and 2,000 million killed sensitized *Bacillus typhosus*, 1,000 million killed sensitized *Bacillus paratyphosus* "A" and 1,000 million killed sensitized *Bacillus paratyphosus* "B".

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SATURDAY, MARCH 13, 1915

A FOREIGN VIEW OF COMPETITIVE ATHLETICS

On various occasions THE JOURNAL has entered a protest against the widespread tendency in the United States toward the extension of competitive athletics in schools.[1] The objections are manifold, and involve questions relating to the dominance of extracurriculum activities over the more serious aims of scholastic institutions, as well as problems concerning the health of the participants. Our concern with the subject has, however, been limited primarily to its hygienic aspects. The danger of overdoing—the abuse of the bodily powers—is the feature which has been foremost in the agitation. That it has not failed to arouse some interest in wider circles is attested by the comments of correspondents on our editorial attitude, as well as by a growing public concern in the matter at issue.

The contentions of THE JOURNAL are shared likewise by European authorities to whom the question of permitting students of various ages to engage in competitive sports has been submitted in a specific way by the Prussian government. In order to discover undeveloped athletic "talent" among the students of the high schools and universities of the German Empire, in anticipation of their being trained for the projected Olympic Games, a clever and presumably effective scheme was proposed. The German committee for the Olympiad suggested the institution of competitive games under the auspices of athletic associations in many places. The participants were to be students without previous special athletic training who would be enabled to demonstrate an inherent fitness in an open competition. The events were to include swimming matches, running and jumping contests of various orders, such as 100, 400 and 1,500 meter races, and numerous other exercises. Although it was assumed that such contests of the untrained would tend to spread broadcast the appreciation of the importance of physical exercise, yet the foremost underlying intent of the plan was undoubtedly to discover the exceptional candidate in order that he could subsequently be trained for the development of latent possibilities of athletic preeminence. From the latter point of view the aim of the German committee was well conceived.

The experts of the Prussian government have not sanctioned the proposed plan. It was submitted to the physiologist Rubner and the clinician Kraus, professors in the University of Berlin. In their report[2] they do not belittle the hygienic value of athletic sports, and they admit that competitive games frequently serve to awaken interest in the need of physical education and improved health through exercise. It is contended, however, that any system of athletics which finds its best expression in competition, and has as its chief end the development of athletic supremacy, fails to meet the real hygienic needs of youth and to serve for the proper perfection of the body. The excesses and the evils of athletics which have grown up in England and America, where this form of sport has received its greatest impetus, are brought home to the German committee. They are reminded that here the organization of competitive athletics is attended with an undue sacrifice of time at the expense of the intellectual pursuits. The contests degenerate into a public entertainment with all the drawbacks of the arena. The development of the body is carried out along lines of extreme specialization.

Physical exercise, if it is to be of real hygienic service, has an object quite different from the preparation of a specially equipped individual trained for a game. Exercise is intended to benefit all the muscles and all the pupils. Its aim is to advance the bodily equipment of the great numbers of our youth; otherwise our so-called physical education fails to serve the community at large. Athletic prowess necessitates taxing the organism to the very limit of its endurance; it is a dangerous expedient and should never become an experiment. The idea of athletic competition must not be transplanted to the schools, where it is certain to endanger the health of the average group of students.

The conclusions of Rubner and Kraus are not only to be endorsed, but deserve widespread publication because they ought to carry weight as sane judgments of competent observers. It does not matter here what the individual exercises are to which the German experts specifically object, and which the government is thus committed to exclude. They comprise particularly such trials as may unduly tax the heart and lungs. School authorities are reminded that races for schoolboys must not be made too strenuous; the exer-

1. Athletics in the Naval Academy, Current Comment, THE JOURNAL A. M. A., Feb. 25, 1911, p. 597; Effects of Strenuous Athletics in the Navy, editorial, Jan. 6, 1912, p. 40; Athletic Sports in Relation to Health, March 21, 1914, p. 936; Athletic Sport versus Competitive Athletics, April 4, 1914, p. 1094; The Hygiene of Athletic Sports—Rowing, April 11, 1914, p. 1172; Collegiate Athletic Sports, June 20, 1914, p. 1967; High School Athletics, Nov. 14, 1914, p. 1765.

2. Rubner, M., and Kraus, F.: Gutachten der königlichen wissenschaftlichen Deputation für das Medizinalwesen vom 11 Februar 1914, betreffend sportliche Uebungen von Schülern, Vrtljschr. f. gerichtl. Med., 1914, xlviii, 304.

tion must not become too prolonged or too severe. The 400 and 1,500 meter races, for example, are forbidden. Pupils with heart affections, anemic individuals and young persons with impaired respiratory function are warned against participation. Exercise is intended to benefit, not to injure the individual. In the army and navy the more difficult forms of sport are permissible; but here we are dealing with a chosen group of well-trained subjects. They are prepared for the task of exertion.

Let no one construe such checks on competitive games as a movement against physical training and gymnastics. The latter should receive every encouragement that a rational system deserves; but the propaganda for a recognition of the value of bodily exercise carried out in any suitable form must be based on a system of health-promoting practices. Competition belongs to the specialist, who must insure himself against the consequences. He should not be allowed to set the standard for athletic sports.

AURICULAR FIBRILLATION AND THE CHANGES IN THE SINUS NODE

Cardiac irregularities have increased in interest since the bundle of His and its function of impulse conduction became known. More recently the Keith-Flack node or sinus node, a bundle of fibers connecting the sinus region with the right auricle, has been described. This node is looked on as the pacemaker of the heart; consequently changes in its structure are regarded as especially significant with respect to abnormal cardiac action.

The sinus node is a closely interwoven bundle of fibers, resembling muscle fibers in structure. It is from 2 to 3 cm. in length, and lies in the region in which the superior vena cava joins the right auricle, that is, in the angle formed by the fusion of the superior cava with the right auricular appendix. On cross-section it is triangular or fusiform in shape, and throughout its course it is surrounded by adipose tissue or by connective tissue. The fibers at the upper end of the bundle join the muscle fibers of the wall of the superior cava, and at its lower end the fibers fuse with the musculature of the right auricle.

Hering[1] first described pathologic changes in the sinus node in a patient who clinically presented a marked irregularity of the heart of long duration. To this type of irregularity he gave the name "pulsus irregularis perpetuus"; more recently it has been termed auricular fibrillation. The normal auricular contraction is replaced by fibrillary contractions of the auricular fibers, several hundred of these occurring each minute. Only a few of them produce stimuli which pass through the bundle of His and produce ventricular contractions. In such a condition the fundamental rhythm of the heart is lost and the arrhythmia is persistent.

Since auricular fibrillation is of frequent occurrence, especially in elderly persons, the nodal region has been frequently examined to determine whether pathologic changes are present to account for the irregularity. Schönberg and others[2] found definite pathologic alterations in the node in cases of auricular fibrillation, such as fibrosis, inflammatory processes with round-cell infiltration, sclerotic changes in the blood vessels of the node, and compression of the nodal region by mediastinal processes. In many of these instances no other changes were present in the heart, and consequently the cardiac irregularity was considered to be a result of interference with the function of the node.

Many cases of auricular fibrillation, however, present normal sinus nodes. Of eight specimens examined by Jarisch,[3] only three had marked nodal alterations. Valvular disease with dilatation of the right auricle was present six times, endocarditis twice; sclerosis and syphilis of the vessels of the heart were each present once. In twenty-three examples collected from the literature, the node was intact five times, and only slightly affected six times. In the examples in which pathologic lesions were found, sclerosis of the bundle was present thirteen times, atrophy and inflammatory changes occasionally. The sinus node as a rule is hypertrophied when the auricular musculature is hypertrophied, and sclerotic when the auricular musculature is atrophied.

Thus it must be concluded that no one anatomic change is the substratum of auricular fibrillation. Nodal alterations may undoubtedly produce it, but other conditions, especially dilatation of the right auricle with thinning of the auricular musculature, are often responsible for the condition.

THE HARRISON ANTINARCOTIC LAW

THE JOURNAL has received many letters on the Harrison law during the past week. Some of these comment on or criticize statements made by THE JOURNAL; others ask questions that have already been answered; and still others raise new questions. THE JOURNAL is making every effort to get official information concerning the interpretation and administration of the law. Like most laws, its phraseology is not the product of any one mind. In the three years in which this bill was before Congress, it was frequently amended and several times rewritten. Few new laws are sufficiently explicit or detailed to provide for every case which may arise under them. In making rulings and interpretations, it is practically impossible for an

1. Hering: Deutsch. Arch. f. klin. Med., 1908, xciv, 185.

2. Schönberg: Frankfurter Ztschr. f. Pathol., 1909, ii, 4. Koch: Berl. klin. Wchnschr., 1910, xxiv. Hedinger: Frankfurter Ztschr. f. Pathol., 1910, v, 2. Freud: Deutsch. Arch. f. klin. Med., 1912, cvi.

3. Jarisch: Zur pathologischen Anatomie des "Pulsus irregularis perpetuus," Deutsch. Arch. f. klin. Med., 1914, cxv, 376.

official to foresee all the conditions which may arise or to estimate accurately the extent to which the regulations will carry out the intent of the law. Following the enactment of any law of importance and especially of any law on a new subject, there is always a period of uncertainty and indefiniteness as to just what the law really means and how its provisions will be applied. The first regulations prepared by the administration are often found to be inadequate and to need modification. It is, therefore, for a time largely a matter of individual opinion what any particular clause in a law may mean.

This is the present situation regarding the Harrison law. The government officers charged with its administration are at present occupied in registering those entitled to licenses under the law, to issuing the licenses, checking up the list of applicants and preventing the grosser and more flagrant violations. It is impossible to expect any government official or any professional publication to answer the innumerable questions which are being asked or to make clear and definite statements regarding the exact limitations of the law. Experience, discussion and much careful consideration are necessary for the solution of some of the problems presented. In the meantime, physicians can only wait in patience, taking care to observe in every way the spirit of the new law and to take every possible precaution against unintentional violation of any of its provisions. Physicians are advised for the present to make a record of all preparations containing the specified drugs which they may give to their patients in any form. Unquestionably, some exceptions to this general rule will be made and definite rulings will be formulated by which the physician will know exactly what is required of him; this will require time. At present, some confusion exists. Evidently a large number of personal inquiries have been directed to the Commissioner of Internal Revenue at Washington, some of which have been answered by subordinates in different ways. Different interpretations have been placed on some of the regulations in bulletins issued by the various District Collectors. The Journal is endeavoring, by direct communication with the Commissioner, to secure official rulings on all the points which have been raised. It is also taking steps to protect the interests of physicians by placing before the proper officials the point of view of the medical profession and the extent to which this law will affect physicians. As fast as official rulings can be secured, they will be given to the readers of The Journal.

In the meantime, physicians are urged to keep in mind the general principles of the law and the purposes for which it was enacted. The law is not intended to, and does not, prevent the sale or distribution of habit-forming drugs for legitimate purposes. Neither does it undertake to limit the judgment of a physician as to the needs of his patient. It is intended to furnish a method by which all preparations containing opium or cocain can be traced from the importer to the ultimate consumer and their final disposition determined, and to limit the traffic in these drugs to responsible persons engaged in legitimate occupations. When the physician dispenses (i. e., when he takes the place of the druggist), then he must conform to the regulations for the druggist and must keep a record of all such drugs dispensed. These are the general principles. It is better to be too careful than not careful enough. For the present at least, the physician should make a record of all habit-forming drugs dispensed, whether to the office patient or to the patient at his home to be taken in the absence of the doctor. Modifications of this ruling may be made later, but until the exemptions are definitely determined, the letter of the law should be fully obeyed.

WAR SURGERY

An opportunity is now afforded to secure authentic information from military surgeons with regard to the immense experience in the present war of all sorts of wounds and pathologic conditions, by over fifty pages devoted to naval and military surgery in a recent issue of the *British Journal of Surgery*. Some of the material will be of interest to the surgeon in civil life. The number of infections in connection with land battles, and the lack of infection in wounds acquired in naval actions, are matters of special interest. Exposure to cold often proves serious for those wounded on shipboard, but in his article on "The Medical Aspects of Modern Warfare, With Special Reference to the Use of Hospital Ships," Charles A. Pannett of London says:

> It is astonishing how mild the infection of wounds has been. The absence of earth dust on ships and the fact that in many cases the wounds are washed by a longer or shorter immersion in the sea probably account for this. It is possible, for instance, in large, lacerated wounds of muscular masses such as those in the thigh, to suture the severed muscles and close the wound completely, with a very good prospect that healing will take place by first intention. The excellent physique of the men is a great factor in the success which follows these efforts, and it also accounts for the very striking absence of shock, and the readiness with which the patients rally under treatment from such shock as may be present. The sailor is an excellent surgical risk.

On the other hand, the writer of the notes on "A Visit to Some of the Military Hospitals of Paris and Boulogne" declares that among wounded soldiers there has been an "orgy of sepsis." He adds:

> Whether this can be prevented or lessened is the biggest surgical problem of the war. The cases in which it occurs are usually large lacerated wounds, caused by shell fire or by bullets striking compact bones and bursting out of the tissues.

The main reason for all the infections is the delay in dressing. Prevention, as every surgeon knows, is the

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watchword of efficiency in surgery against sepsis. "If surgery were the first instead of the last consideration of war, then, no doubt, arrangements could be made for all the serious wounds to be dressed on the field fully and properly." As this cannot be done, sepsis is almost inevitable, and the consequence is a great many serious, often fatal, septic conditions.

The worst septic complication of wounds that has been seen frequently during the present war is the so-called gas gangrene. There are a series of forms of this, and not all the cases are by any means necessarily identical with acute emphysematous gangrene. The cases as a rule begin as a cellulitis with much gas formation and rapid sloughing of tissues, and then gangrene eventually develops, running a rapid course. The causative agent has always so far been found to be some form of an anaerobic organism. It is not always the same organism. Pus is not produced in the early stages, but only sloughing and gas formation. Later on, if there is a reaction toward recovery, the pyogenic organisms gain a foothold and predominate in the condition, and pus is freely produced in the devitalized tissues. Frequent irrigation with hydrogen peroxid has done the most good. A stream of oxygen gas directly on the wound has given good results. "Lately Sir Almroth Wright has suggested placing gauze, wrung out of 5 per cent. salt solution, between the muscles and connective tissue planes, in order to encourage the outpouring of lymph. This has appeared to be an excellent method of treatment."

Lieut.-Col. C. B. Lawson of the Royal Army Medical Corps, and H. Beckwith Whitehouse, in a preliminary communication from Rouen on "The Treatment of Acute Emphysematous Gangrene," have a suggestion with regard to some of the worst of these cases that is most interesting. Patients suffering from the condition who appeared almost *in extremis* when they entered the hospital with extremely foul wounds, the tissues around edematous, devitalized and emphysematous, with typical blebs on the skin surrounding the wound, have been treated by a new method with hydrogen peroxid with life-saving results. "Small incisions were made into the *healthy tissues* above the infected area, and through these punctures hydrogen peroxid was pumped into the subcutaneous and subfascial planes by means of a Higginson syringe. The evolution of oxygen was rapid and the stump soon assumed enormous proportions, emitting a resonant note on percussion." At once the spread of the gangrene was arrested. The existing gangrene sloughed away, but the surrounding skin assumed its normal look and the circulation was reestablished. There was uninterrupted recovery. The cases reported cured are few, but were very severe, and the results secured are significant. Care must be taken to obviate shock and trauma of veins. There is some risk of air embolism, but so far no serious results have been noted. The hydrogen peroxid must be neutral in reaction. It should be injected warm and used plentifully.

Absolutely the best application to wounds in the field has been iodin. This has been used very freely. In spite of this copious use, no ill results have been seen from painting even very large wounds with iodin. A 2.5 per cent. alcoholic solution of iodin has proved much more effective than any other antiseptic used. As Dr. Morgan of London, who had experience with the wounded in Namur, says:

> One often felt that if only a small phial of iodin could have been poured on the wound first [before the first field dressing was applied] it would have been so much more efficacious.

Even with all the encouraging reports, the feeling is brought poignantly home to the reader that organization for the killing and maiming of men has far outdistanced that for caring for them after the maiming process has finished its work. This is not the fault of the medical services, but of the greater interest of government authorities in the development of the killing and maiming side of war rather than that of the preservation of the wounded. Perhaps some day it will be different.

THE MILLING OF CORN (MAIZE) FLOUR AND ITS RELATION TO HEALTH

Soon after the earlier demonstrations that the essential cause of beriberi was to be sought in a nutritive defect, and that highly polished rice gave rise to the disease whereas whole rice did not, attention was centered on the chemical composition of the rice polishings.[1] Among the components of the grain lost in the milling process are substances containing phosphorus. It has been shown that the symptoms of beriberi are not due to a deficit of this element, and that the organic compounds yielding it are not the agents in polishings which prevent the disease. Nevertheless it has been suggested that inasmuch as the essential substance and the higher phosphorus content accompany each other in the outer layers or pericarp of the grain, the amount of phosphorus could be used as an indicator of the disease-producing potency of the rice. On this basis practical rules were formulated as to what constitutes a polished rice.

It has been suggested that if the "vitamin" and the phosphorus compounds are associated in one grain they are likely to be found in the same layers of other grains also. Dr. McCrae,[2] government analyst for the Transvaal in the chemical laboratories at Johannesburg, has accordingly analyzed a number of samples

1. The Relation of Rice to Certain Diseases, editorial, THE JOURNAL A. M. A., Feb. 24, 1912, p. 556; Beriberi, Rice and Beans, April 13, 1912, p. 1119; Recent Japanese Investigations on Rice Bran in Relation to Disease, Sept. 14, 1912, p. 883; The Supposed Significance of Phosphorus Compounds in the Development of Polyneuritis and Beriberi, Nov. 16, 1912, p. 1801; Flavors and Vitamins, Current Comment, Dec. 26, 1914, p. 2296.

2. McCrae, J.: The Phosphoric Oxid Content of Maize Flour, Jour. Hyg., 1914, xiv, 395.

of maize and its wastes obtained from mills on the Witwatersrand, Transvaal, in order to measure suspected loss of essential substances in the usual production of maize meal or flour. The phosphoric acid content was used as an index. In every case it was found that the fine meal contained not more than four-fifths of the phosphorus present in the original grain.

Although a loss of this sort always takes place in the conversion of the maize into flour, the presumption of McCrae that concomitantly there was a loss of "vitamin" remains to be proved. The loss of pericarp is not so considerable by any means as takes place in the polishing of rice. Nevertheless it seemed desirable to ascertain whether, by milling the grain in such a way as to minimize the loss of phosphorus (and "vitamin"?), the flour would be improved. This has been accomplished for experimental purposes by altering the processes in such a way that 96 per cent. of the original grain was converted into fine meal passing a 30-mesh sieve. The loss of phosphorus is thereby reduced to a minimum. Dietary experiments on a very large scale are in progress with the new and old types of meal furnished to several thousand native laborers in the gold mines, among whom maize meal is a staple article in the diet. It is tentatively reported[2] that the incidence of disease among those using the new type of meal is much lower than among those eating the old type. No intestinal disturbances due to the use of the ground whole maize have been reported. McCrae believes the conclusion to be justified that fine white meal, produced after removal of the husk and a considerable proportion of the germinal part of the maize, is defective food which may give rise to some form of deficiency disease. If by grinding the maize in such a way that practically the whole of the grain is converted into fine meal this defect is remedied, considerable dietary advantage will accrue. To us it seems rather early to accept McCrae's conclusions as final. Nevertheless, we appreciate the importance of the technical problem solved. The possibility of marketing some of our cereal grains and certain other plant products in the form of fine powders which contain practically all of the original ingredients, without loss by milling and grinding, ought to have some importance amid the present uncertainty regarding food deficiencies and the preservation of the natural components of foods.

Sanatoriums for the Treatment of Tuberculosis.—It is said that Massachusetts has five state sanatoriums for the treatment of tuberculosis, with a capacity of 1,100 patients, and 32 city sanatoriums with a capacity of 1,359. Connecticut has 4 state and 5 city sanatoriums. Ohio has 20 county institutions. Wisconsin has 8 and 1 in preparation. California has 5 city sanatoriums. Indiana and Iowa each 4 county sanatoriums. Kentucky has voted 4 levies. Michigan has 3 in operation and taxes levied for 3 more. New Jersey has 5, Illinois 2 and Texas is now building 5. Illinois, Kentucky and California have no state institutions, and there are 14 states without county or city sanatoriums in operation.

Current Comment

AID FOR BELGIAN PHYSICIANS

It would be merely repeating what everyone knows to state that conditions in Belgium are terrible beyond description, and that human beings are literally starving. Various methods have been adopted to improve the conditions, but most of them have been more or less general. In addition there have been developed methods for relief by groups, among which is that conducted by the Committee of American Physicians for the Aid of the Belgian Profession. Specifically, the object of this committee is to relieve only members of the medical profession in Belgium. The contributions that have been received by the committee have been reported in our news columns week by week. It will be noticed that these contributions usually run above $5.00, although once in a while someone sends in $1.00. And yet there are thousands of physicians who are not able to give $5.00, but who would gladly contribute a smaller amount. We want to emphasize at this time what was suggested incidentally last week —that officers of medical societies could render great help to the committee by giving the members an opportunity to make contributions—small or large as the case might be—and let the total amount be credited to the society. This is one way of showing the efficacy of organization. The presentation of this humanitarian work to the members would, most assuredly, be aiding a good cause. It would permit the collection of small amounts, which though slight in themselves, would aggregate an effective sum. As will be noticed, last week there were four societies which contributed, and this week there are three more. If the number of small contributions can be increased, the most complete results will be achieved.

THE ECONOMIC ADVANTAGE OF EXTERMINATING DANGEROUS ANIMAL PESTS

There is no longer any novelty in the statement that health is a purchasable commodity. It would require little effort to instance numerous typical cases in which the institution of hygienic measures through public agencies has resulted in a conservation of human life important in itself and out of all proportion, in its beneficent consequences, to the expenditure of effort or money involved. Aside from the classic illustration of what has been accomplished in the Panama Canal Zone, we may recall the additional familiar experience in the eradication of bubonic plague from the cities on our Pacific coast. The infection of the rat—the source of the disease as it is communicated to man—was carried to the ground squirrels of California. After the recognition of this added danger, the United States Public Health Service caused a reduction in the number of these animals, in that state estimated at 90 per cent., from July, 1913, to November, 1914. The destruction of the animals involved an area of 3,373,146 acres, which includes about 2,000 miles of railroad right of way. The average cost for labor and materials has been about 17.4 cents per acre, and

the average infestation has been about 6.5 squirrels per acre. As a result, it is believed that, for all practical purposes, bubonic plague has been eradicated from the state of California. It is a scarcely anticipated consequence of this campaign in the interest of public health that the destruction of animal pests on this extensive scale incidentally has resulted in large economic advantages. The destroyed ground squirrels have caused great losses each year through damage done in the most diverse ways: Growing crops have been eaten or destroyed; nursery stock has been damaged; the burrows made into the banks of irrigation ditches and canal banks have resulted in floods with attending disasters and financial loss. Frequent interruptions to railroad traffic have occurred through cave-ins in railroad cuts and washouts in embankments that have had their beginning through flood or surface water finding its way through a ground-squirrel burrow to a place where damage could result. In addition, even though washouts did not occur, subsidence of ties and rails took place because of individual burrows or colonies caving in, with resulting increase in maintenance-of-way charges and repairs to rolling stock and rails, due to pounding, and on rail ends and joints. An investigation by the Public Health Service[1] has revealed something regarding the unexpected magnitude, in dollars and cents, of the savings resulting from the antisquirrel campaign aside from the conservation of human life. Twenty-one persons reported savings of over $2,000 in repairs to irrigational canal banks; twenty-two reported an average saving of $99 per person on young trees; even greater advantages were reported in respect to stored grains. Satisfaction was widely expressed, and from 497 replies received it appears that an average expenditure of 11.2 cents per acre in squirrel extermination brought an estimated saving of 34 cents per acre—a return of 300 per cent. the first year.

THE HEN AS A POSSIBLE TYPHOID CARRIER

The problem of the carrier in various infectious diseases has long vexed the sanitarian who is bent on discovering every possible mode of transmission and every portal of entry for the pathogenic organisms. Human carriers of typhoid and diphtheria germs, themselves immune to attacks of the malady, are now watched for in nearly every community, and the danger which they represent as a latent source of infection is clearly recognized. Doubtless, many of these possibilities for spreading disease without the presence of detectable symptoms are still unrecognized. In the case of the *Bacillus typhosus,* it has been shown that some of the lower animals may, by experimental methods, be made typhoid carriers; and attention has lately been directed to such animals as might be expected to become carriers by reason of their environment or habits. Mitchell and Bloomer[2] of the bacteriologic laboratory of the University of Missouri have accordingly pointed out that the chicken is a domestic animal which might often come into contact with typhoid excreta. If given an opportunity this animal will readily partake of feces, and the practice may be observed in a locality in which open closets abound. The droppings of chickens are so widely scattered that they could become a serious source of danger should they contain typhoid bacilli. Mitchell and Bloomer remark that the mechanical transference of typhoid bacilli on the feet and bill of a chicken does, without question, occur; but such transmission cannot be called "carrier transmission," which refers to the harboring and multiplication of the germs within the body. By various methods of administering *Bacillus typhosus,* either in stock cultures or in infected excreta, to hens, they have attempted to follow the fate of the micro-organism and particularly their possible reappearance in the droppings of the fowls. From the work of the Missouri bacteriologists it would seem that the hen is highly resistant to the typhoid organism. It not only fails to take the disease, but apparently cannot be made a carrier by feeding with the bacilli or by intravenous inoculation. The data are perhaps too meager as yet to permit a final pronouncement; but the preliminary indications at any rate are negative.

1. Long, J. D.: The Economy of Ground Squirrel Destruction, Public Health Rep., 1914, xxix, 3317.
2. Mitchell, O. W. H., and Bloomer, G. T.: Experimental Study of the Chicken as a Possible Typhoid Carrier, Jour. Med. Research, 1914, xxxi, 247.

THE STERILITY OF NORMAL HUMAN URINE

We presume that few, if any, persons would hesitate to designate the normal urine of healthy man as a secretion free from micro-organisms. This conclusion seems to follow as a logical consequence from the fact that innumerable negative cultural results have been obtained after inoculation of laboratory mediums with fresh urine or its centrifugal deposits. Urine carefully collected into a sterile flask and allowed to stand at room temperature may ordinarily be kept for long periods without any visible signs of bacterial contamination such as would be furnished by the clouding of the fluid with growths of micro-organisms. Recent experiments, conducted by Hort[1] at the Lister Institute in London, show that evidence of the foregoing character is scarcely admissible on theoretical grounds, and is not even valid in fact. It is conceivable that incubation of the urine at body temperature may be necessary to allow the multiplication of infecting organisms to take place. Indeed, the use of incubated urine as the medium of growth shows it to be a highly sensitive and reliable indicator of infection with organisms that appear to be extraneous. Except in the case of broth inoculated with uncentrifuged urine, absence of growth on the ordinary laboratory mediums inoculated with fresh urine or its centrifuged deposit appears to be of little value as an index of the sterility of the normal urine. According to Hort's observation, when suitable culture technic is employed it is difficult, if not impossible, to obtain sterile specimens of urine either by the catheter method of collection as ordinarily carried out or by the "serial" method, whereby the discharge is conducted into a series of receptacles and only the

1. Hort, E. C.: The Sterility of Normal Urine in Man, Jour. Hyg., 1914, xiv, 509.

last members of the series are reserved for examination. In either case, unsterilized air through which the urine passes during the process appears to be a frequent source of the extraneous infection of the urine. A more satisfactory method of determining whether normal urine is or is not sterile before it leaves the bladder would be to obtain a sample by suprapubic puncture during life. In man this procedure has obvious disadvantages. From specimens of animal urine obtained in this way by Hort and Ingram, it is concluded that the normal renal secretion of cattle, sheep and guinea-pigs, provided they are healthy, is probably sterile. Normal human urine is therefore in all probability likewise sterile; but the British investigators insist that a rigorous proof of this is still to be furnished.

OCCURRENCE OF BACILLUS AEROGENES CAPSULATUS IN THE FECES

The "gas bacillus," *Bacillus aerogenes capsulatus*, has long been looked on as an organism of undesirable attributes, its existence being associated with untoward consequences when it is present in any considerable numbers. This micro-organism has gained an etiologic significance in connection with a variety of abnormal states; and it has even been described as a causative factor in pernicious anemia, in which it was supposed to be present in undue abundance in the alimentary tract.[1] There is no doubt about the widespread distribution of Welch's bacillus in nature, especially in the soil, milk and water of certain regions. Its relation to surgical injuries and to wounds was recently discussed in connection with the bacteriology of the wounds in the present European war,[2] its ultimate source being ascribed to the soil contaminated by dejecta containing the organism. The severe symptoms which the *Bacillus aerogenes capsulatus* may be responsible for in some of the cases here referred to have of themselves shrouded the finding of the organism anywhere with an imputation of pathogenicity. The question as to whether the "gas bacillus" is really an unusual and dangerous invader of the alimentary tract, or a customary frequenter of this region of the body, has lately been considered by several investigators.[3] In eighteen children suffering from minor ailments but without marked derangement of the intestinal tract, Knox and Ford isolated the Welch bacillus from the dejecta on the first examination in nine cases. The identifications were always insured by inoculation experiments revealing gaseous edema in animals and positive cultures from the organs and tissues. In the nine other cases, although the organism was not obtained on the first trial, subsequent examination revealed it in all instances. In seven breast-fed infants, the dejecta were negative in respect to the reaction for the gas bacillus. Knox and Ford conclude that, in view of their inquiry, the *Bacillus aerogenes capsulatus* must be regarded as a normal and constant inhabitant of the intestinal tract in children except in breast-fed infants. Similar results were obtained by Orton at the Worcester State Hospital. Knox and Ford add that the attaching of any pathologic significance to the presence of this organism in the intestine can therefore properly be made only when evidence can also be adduced to show its excessive development.

1. Herter, C. A.: The Common Bacterial Infections of the Digestive Tract, New York, 1907.
2. The Bacteriology of the Wounds in the War, editorial, THE JOURNAL A. M. A., Jan. 30, 1915, p. 438.
3. Orton: A Note on the Occurrence of B. Aerogenes Capsulatus in an Epidemic of Dysentery and in the Normal, Jour. Med. Research, xxix, 287; Knox, J. H. M., Jr., and Ford, W. W.: The Occurrence of Bacterium Welchii (Bacillus Aerogenes Capsulatus) in the Dejecta of Children. Bull. Johns Hopkins Hosp., 1915, xxvi, 27.

MAJOR-GENERAL GORGAS

For the first time in our history a physician holds the rank of major-general. Regenerator of Havana, preserver of the Panama Canal, surgeon-general of the army, president of the American Medical Association, scientific physician and knightly gentleman, congress could honor General Gorgas only by creating a new precedent. In fitting company with Goethals, who dug the canal, stands Gorgas who kept the men alive while they dug it. With this new rank goes the thanks of congress and a life appointment as surgeon-general. The reward, unprecedented as it is, is in due proportion to the magnitude of the work. A canal has been completed, uniting two great oceans, realizing the dreams of civilization for four hundred years. A pestilential tropical swamp has become a health resort. Not only the nation, but the world has been taught the value of scientific sanitation. The toils, the struggles, the difficulties of the past are forgotten, the work is completed, the honors are fairly and equally awarded to the two men who made the canal possible. All honor to Major-Generals Goethals and Gorgas and to the men and the professions they so nobly represent.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. Norman Bridge has been elected president of the Los Angeles Society for the Study and Prevention of Tuberculosis.——Dr. Walter B. Power, Redlands, who has been working with the Red Cross units in France, has returned to America.——Surgeon Claude C. Pierce, U. S. P. H. S., has been detailed as sanitary inspector of the Panama-Pacific Exposition, San Francisco.——Dr. Edward von Adelung, Oakland, has returned from abroad.——A reception was given in honor of Dr. Adelaide Brown, San Francisco, recently appointed a member of the State Board of Health, by the members of the San Francisco Center, February 21.

Psychopathic Hospital Opened.—The Los Angeles County Psychopathic Hospital recently erected on the grounds of the County Hospital has been opened as the psychiatric department of the institution. It has a complete therapeutic equipment and can accommodate about seventy-five patients. It is intended to serve as a place of detention for insane suspects until their cases can be studied and disposition made of the patients. It is also intended to furnish treatment for acute cases and to serve as a center for the dissemination of information regarding the insane among the general public and it is stationed for field work. It will also furnish students and physicians excellent facilities for the study of psychiatry. Dr. Charles L. Allen, Los Angeles, is in charge of the department.

COLORADO

Physician Exonerated.—In the case of Dr. Floyd W. Noble, Denver, charged with the death of Ruth K. Merriweather by

an illegal operation, the jury declared the defendant not guilty, March 2.

Personal.—Dr. Walter S. Scott has been appointed chief surgeon of St. Anthony's Hospital, Denver.——Dr. James E. Vance, LaSalle, has been appointed local railway surgeon at LaSalle, vice Dr. Augustus E. Greene, LaSalle.

Health Board to Move.—The new headquarters of the Pueblo City Health Department at the City Hall have been completed and are now in occupancy. The bacteriologic laboratory, which has been located in the central block, has been transferred to the laboratory room at the new headquarters.

IDAHO

Personal.—Dr. D. Orr Poynter, Montpelier, formerly assistant superintendent of the Southern Idaho Hospital, Blackfoot, has been appointed medical superintendent of the institution, succeeding Dr. George E. Hyde, Blackfoot.——Dr. Frank S. Wright has been appointed health officer of Salmon and physician of Lemhi County.——Dr. Warner H. Carithers has been appointed physician of Latah County.

ILLINOIS

Personal.—Dr. Frank R. Frazier, Yorkville, was operated on at the Presbyterian Hospital, Chicago, March 3.——Dr. Gilbert L. Bailey, Oak Park, sailed for Germany, March 2, to take charge of an American Red Cross hospital.——Dr. C. E. Fidler, Canton, who has been ill in a hospital for a long while, has recovered and resumed practice.

Opens Institutions to Drug Users.—Anticipating the hardships of habitual drug users which will follow the going into effect of the Harrison antinarcotic law, Governor Dunne issued a statement, March 5, advising drug addicts to apply to the county courts of their respective counties for treatment at one of the state institutions. The authorities of the state hospitals at Kankakee, Elgin, Anna, Watertown, Peoria, Jacksonville and Dunning have been instructed to receive and treat all such applicants. It is announced that the Cook County Hospital will be opened to drug victims, many of whom are in much distress since the taking effect of the Harrison antinarcotic law. They are now unable to obtain the drug which they formerly depended on to keep them comfortable. Cook County Hospital has not hitherto received drug victims. A number of them are also to undergo treatment in the Bridewell. A number of suicides or attempted suicides have been reported of drug victims who were unable to obtain their regular "dope."

Auxiliary Medical Society.—A number of organizations of Freeport, including the Woman's Club, Board of Education, Associated Charities, school superintendents and principals, Chamber of Commerce, Ministerial Association, Nurses' Association, Settlement Home, King's Daughters, Parents-Teachers' Association, Amity Society, Antituberculosis League, Dental Association, Stephenson County Medical Society, Y. M. C. A. and Y. W. C. A. Auxiliary, Catholic Woman's Club, St. Mary's Relief Society and St. Ann's Society, met March 1 to organize an auxiliary body to the Freeport Academy of Medicine and Surgery, with the especial idea of promoting the educational and social welfare of the general public. It is proposed to have popular lectures on health and welfare topics about every two months. The first of these is to be given March 16 by Dr. James P. Simonds, Chicago, on "Community and the Home—Their Reciprocal Sanitary Relations, and the Full-Time Health Officer." In May, Dr. Frank Allport, Chicago, will lecture on "Medical Inspection of Schools and the Health and Welfare of the School Child."

Chicago

Public Health Laboratory in Chicago.—The United States Public Health Service has established a laboratory for the analysis of food and water in the Marine Hospital, Chicago, and has detailed Assistant-Surgeon Charles L. Williams, U. S. P. H. S., and Sanitary Engineer H. P. Letton to take charge of the work under the direction of Surgeon Julius O. Cobb, commander in Chicago.

Fight on Blindness.—At a lunch, March 6, given by Mr. Bryan Lathrop, president of the newly formed Society for the Prevention of Blindness, the first steps were taken toward arousing public sentiment in favor of legislation for the prevention of blindness. Mr. Edward Van Cleve, head of the New York Institution for the Education of the Blind, delivered an address. The society has urged the following preventive measures: License and registration of all midwives; compulsory application of nitrate of silver to the eyes at birth; annual examination of schoolchildren by public schoolteachers; treatment of children suffering from eye disease and regulations to prevent industrial accidents to eyes.

IOWA

Personal.—Dr. John W. Fowler, Dubuque, who has been seriously ill in a hospital in Milwaukee, is reported to be convalescent.——Dr. M. Charles Mackin, Clarinda, has assumed his new duties as superintendent of the Iowa State Hospital for Inebriates, Knoxville.

Smallpox at Davenport.—Under date of March 2 it was reported that there were about seventy-five cases of smallpox in Davenport with indications of the extensive spread of the epidemic. An additional school has been closed and the city authorities have concluded to provide for an assistant to the city health officer to carry on the work of vaccination and quarantine. Health Officer Middleton is authority for the statement that two members of a religious sect which does not believe in medical treatment while afflicted with mild cases of smallpox walked the streets of the city for two or three weeks, and undoubtedly hundreds were exposed to this source alone. The disease was said to be costing the city $100 a day. There were fifty-five cases during February.

MARYLAND

Personal.—Dr. James M. Delevett, Baltimore, was slightly injured in an automobile accident, recently.——Dr. J. H. Jarrett, Towson, celebrated his eighty-third birthday anniversary, February 24.——Dr. Harry Deibel, Baltimore, was seriously injured in an automobile wreck near Brooklyn, Md., recently.

Report of South End Hospital.—The annual report of the South Baltimore Eye, Ear, Nose and Throat Hospital shows that there were 4,046 new patients treated during the past year. Of this number 3,704 were white and 342 colored. The number of house patients was 493, to whom 2,065 days' treatment was furnished. Of this 447 days were paid for in part or in full, while 1,618 were furnished free. Dr. Harry E. Peterman, Baltimore, was elected recording-secretary for the board of directors.

MASSACHUSETTS

Boycott by the Antivaccinationists.—It is reported that the New England Antivivisection Society want Wellesley and Mount Holyoke colleges boycotted by parents because they insist on having all entering freshmen vaccinated.

Tuberculosis Building Favored.—A bill authorizing the trustees of the Hospital for Consumptives of Boston to hire beds not exceeding 100 in number, for tuberculosis patients in Boston until July 1, 1915, has been reported on favorably by the committee on public health.

Personal.—Dr. Otho L. Schofield has been reelected selectman of Wellesley.——Dr. Fred S. Smith has been reelected a member of the school committee and Dr. Edward W. A. Holt a member of the Board of Health of North Andover.——Dr. John J. Deacy has been elected physician to the Board of Health of Lawrence.

Health Commissioner Names Inspectors.—Dr. Allen J. McLaughlin, health commissioner of Massachusetts, has announced as the result of an examination recently held the selection of the following eight sanitary inspectors: Drs. Lyman A. Jones, North Adams; William H. Coon, Haverhill; Merrill E. Champion, Arlington; Adam S. MacKnight, Fall River; William W. Walcott, Natick; Charles E. Simpson, Lowell; John S. Hitchcock, Northampton, and Frank L. Morse, Somerville.

Bostonians Want Creel.—President Lowell of Harvard University, President McLaurin of the Boston Institute of Technology, President T. W. Sedgwick of the American Public Health Association and State Health Commissioner Allen J. McLaughlin are said to have sent a petition to Surgeon-General Rupert Blue, U. S. P. H. S., urging him to reconsider his refusal to grant a leave of absence to Surgeon Richard H. Creel, that he might become head of the Boston Health Department.

Chapin Memorial Tablet Installed.—On March 3 a bronze tablet and memorial placed on the wall of the reception room of the Chapin Memorial Building of the Springfield Hospital was completed and installed. The tablet is about 5 feet 6 inches by 2 feet 10 inches, is of bronze, and bears a medallion of Dr. Chapin with an inscription reading as follows: "Fred Wilcox Chapin, Physician and Surgeon. Born at Middletown, Connecticut, November 17, 1849. Died

at Springfield, Massachusetts, December 15, 1910. This building was erected to his honor and memory through the generous gifts of these relatives and friends." Then follows the names of 104 contributors to the building fund.

MISSOURI

Mayo in Kansas City.—Dr. Charles H. Mayo was the guest of honor at the twentieth annual banquet of the Kansas City Academy of Medicine, February 27. Dr. Jefferson D. Griffith presided and Dr. Mayo delivered an address on "Why Gastro-Enterostomy Fails to Cure."

Personal.—Dr. Walter S. Wheeler tendered his resignation as health commissioner of Kansas City, to take effect April 1. A successor has not been appointed. Dr. Wheeler has filled the office for eight years, being the first health commissioner appointed under the new charter.——Dr. Frank M. Ryan, Maryville, has been appointed county physician and health officer of Nodaway County.——Dr. Willard C. Proud and family, Oregon, have returned from abroad.——Dr. George C. Mosher, Kansas City, was operated on at the German Hospital, February 27, and is reported to be doing well.

St. Louis

Personal.—The house of Dr. Jacob J. Singer was burned February 17. Dr. Singer and his family made their escape by dropping from a second-story window.——Dr. William F. Kier was beaten and robbed in his office, February 5.

Endowment Fund for Skin and Cancer Hospital Increased.—The endowment fund of the Barnard Free Skin and Cancer Hospital has been increased so that it almost reaches the intended amount of $400,000. Acting under the instructions of the board of directors, the medical board has reorganized the research department of the hospital, and Dr. George M. Smith, associate professor of pathology in Washington University, has accepted the position of director of the hospital and research department and will enter on his duties April 1.

MONTANA

New Hospital.—The new hospital at Terry, with accommodations for fourteen patients, is practically completed and will soon be ready to receive patients.

Personal.—Dr. William C. Almas, Butte, on his own request has been committed to the State Hospital, Warm Springs.——Dr. Helen C. Roberts has been elected president of the Great Falls Federation of Women's Societies.

NEW MEXICO

Army Sanatorium Commandant Honored.—Col. George E. Bushnell, M. C., U. S. Army, in charge of the United States General Hospital, Fort Bayard, for the last eight years, and his staff, were the guests of honor at a banquet given by the Chamber of Commerce of Silver City, February 26. Dr. Earl S. Bullock, Silver City, medical director of the New Mexico Cottage Sanatorium, spoke of Colonel Bushnell's work in medicine and his achievements in the line of tuberculosis. Tributes were also paid by Chaplain W. K. Lloyd, U. S. Army, and Mayor Percy Wilson of Silver City; and Colonel Bushnell responded, thanking the assemblage for the honor paid to him and to the Medical Corps of the Army.

NEW YORK

Christian Science Bill Defeated.—The Thorn bill, permitting Christian Scientists to practice healing in this state, was practically killed March 3, when it was recommitted in the assembly for a hearing by a vote of 69 to 31.

Health Hints Discontinued.—Announcement is made by the director of publicity and education of the State Board of Health, that owing to the lack of funds for the educational work of the department, the publication of *Weekly Health Hints* will be discontinued after March 1.

Personal.—At the annual meeting of the Gross Medical Club, Buffalo, February 19, Dr. J. Henry Dowd, Buffalo, was elected president; Dr. W. Warren Britt, Tonawanda, vice-president, and Dr. Chester C. Cott, Buffalo, secretary.——Dr. Frank H. Lawrence, Kanona, has been taken to the Willard State Hospital for treatment.——Dr. Paul B. Brooks, Norwich, began his service as sanitary inspector of the State Department of Health for the counties of Chenango, Broome, Madison and Cortland, March 1.

Hearing on Antivivisection Bill.—A hearing was held March 2 before the joint legislative committees on the judiciary on the bills intended to prevent the practice of vivisection in this state. Those who argued against these bills were Drs. Simon Flexner, Frank VanFleet, William H. Park, Fred S. Leo and Prof. Paul B. Mann. The latter declared that these bills would not only interfere with progress in medical science, but with the study of animal life in biology and physiology, and that even the study of the migration of birds through fastening tags on their wings might be considered prohibitive under the proposed law, and that any one joining the "swat the fly" movement was in danger of arrest. Antivivisectionists and representatives of the Society for the Prevention of Abuses in Animal Experimentation were out in full force.

New York City

New Ruling on Burials.—A recent amendment to the sanitary code makes it no longer requisite that bodies of persons dying from contagious diseases be buried within twenty-four hours. The requirements that such funerals be private and conducted with conformity with the regulations previously existing continue in effect as heretofore.

City Acquires Another Hospital.—The New York Association for the Improvement of the Condition of the Poor has turned over to the city its new $250,000 Sea Beach Hospital for Tubercular Children at Rockaway. The buildings are completely equipped and prepared to care for 138 children suffering from non-pulmonary tuberculosis. When the plans for the hospital are completed there will be a capacity of 1,000 beds.

Hospital for Wall Street District.—An organization has been formed by a number of bankers, lawyers and business men for the purpose of establishing an emergency hospital in the financial district of the city. Arrangements have been completed for the leasing of four flours in an eight-story fireproof building at 100-111 Broad Street for temporary quarters for "The Broad Street Hospital." The hospital will contain at first twenty-four ward beds and it is proposed to extend the work so that general as well as emergency cases may be accommodated. Twenty-five hundred dollars will endow a ward bed and $5,000 a private room. The organization is working for an endowment of $1,000,000.

Personal.—Dr. David Bovaird, Jr., has been granted a leave of absence by Columbia University, from April 15 to November 15, to enable him to visit the various mission stations, hospitals and medical schools in which the board of foreign missions of the Presbyterian Church is interested in Siam, the Philippines, China, Corea and Japan. He will devote himself to the study of the medical problems related to this work.——Drs. Joseph S. Wheelwright, Thomas C. Walker, W. H. Braddock, Albert O. Jimenis and John C. Irwin accompanied by ten nurses from the French Hospital, sailed for France on the *La Touraine* on March 1, where they will engage in relief work.——Dr. Herman L. Reis recently obtained a verdict of $7,000 against the estate of Timothy D. Sullivan for services rendered to the deceased and his friends, and dependents whom he had sent to Dr. Reis for treatment.

NORTH DAKOTA

New Hospital.—Drs. John and Fred E. Ewing, Kenmare, will begin the construction this spring of a new hospital building at Kenmare, to cost $25,000.

Smallpox in the Legislature.—Smallpox broke out in the North Dakota Legislature in the latter part of February, one senator and the clerk of the senate ways and means committee being the victims. The patients were sent to the detention hospital. The cases were mild. No further spread of the disease is reported.

OREGON

Component Society for Lane County.—The Lane County Medical Society, at its meeting in Eugene, February 10, adopted the standard constitution and affiliated itself with the state and national organizations.

Appropriation for Hygiene Society.—The Oregon Social Hygiene Society has been allowed a legislative appropriation of $15,000 for its work, with the provision that this money shall be expended under the supervision of the State Board of Health. The society applied for an appropriation of $31,000.

Graduation Required.—At the recent session of the Oregon legislature the medical practice act was amended to provide that hereafter all applicants for the license to practice in that

state must present satisfactory evidence of graduation from a medical college approved by the licensing board. This leaves only three states—Colorado, Massachusetts and Tennessee—which continue to admit non-graduates to the examinations for the license to practice medicine.

State Board in Salem.—The Joint Ways and Means Committee has voted to allow the State Board of Health an appropriation of $30,000 and to make Salem the headquarters of the board. The appropriation was within $3,678 of the amount asked by the board, and of this amount $2,238 was allotted for rent. The committee figured that this rent might be saved and that the board might be in a position to do laboratory work for all of the state institutions.

PENNSYLVANIA

Dinner to Provost.—Provost Edgar F. Smith of the University of Pennsylvania, Philadelphia, was the guest of honor of the Pittsburgh Alumni of that institution, February 26.

A Decade as State Health Commissioner.—On March 1, Dr. Samuel G. Dixon, Philadelphia, health commissioner of the state of Pennsylvania, completed ten years of service in that position.

Settlement Physicians Entertained.—The dispensary committee of the board of managers of the Public Wash House and Baths Association of Pittsburgh, entertained the seven women on the medical staff of the institutions at luncheon, March 1.

Semicentennial to be Celebrated.—Arrangements are being made by the Allegheny County Medical Society for the celebration of its semicentennial, April 20. It is proposed to devote the morning to clinics in the hospitals, the afternoon to a formal meeting of the society and the evening to a subscription banquet.

Oppose "Wide Open" Hospital Bill.—State charity experts, trustees and resident physicians opposed the passage of a bill permitting pay patients to call in any duly licensed physician or surgeon to attend them while in hospitals receiving state aid, even physicians or surgeons not connected with the institution. The bill has passed first and second reading in the house and now is in the house committee on public health and sanitation where an effort is being made to kill it.

Mellon Lecture.—An endowment lectureship has been presented to the Society of Biologic Research of the University of Pittsburgh, by Mr. Richard B. Mellon. This provides for an annual lecture on subjects of medical research, the lectures being published in the form of monographs, for distribution to libraries and research workers. The first lecture was given by Prof. John J. Abel, Baltimore, of Johns Hopkins University, February 27, on "Experimental and Chemical Studies of the Blood and Their Bearing on Medicine."

Personal.—Fire of undetermined origin burned out the offices of Dr. Thaddeus A. Starzynski, Pittsburg, February 28.——The home of Dr. Simon S. Koser, Williamsport, was destroyed by fire, February 28.——Dr. Guy R. Anderson, Barnesboro, is ill at his home——Dr. Thomas Elliott, Sharon, is reported to be critically ill with septicemia in a hospital in that place.——Dr. Andrew S. Stayer, Altoona, who has accepted a position as surgeon of the Maine Soldiers' Home, was given a dinner, February 26.——Dr. Jerome B. Rogers, Pottsville, has been appointed chief of the surgical staff of the Pottsville Hospital, vice John H. Swaving, deceased.

Philadelphia

Personals.—Dr. S. Wilmer Tunnell was operated on for appendicitis at the Medico Chirurgical Hospital, March 3. His condition was considered serious.——Dr. Louis Lehrfeld has been appointed by Director S. Lewis Ziegler, agent of the department of diseases in the department of health.

Hospital Ward to Cure Dope Fiends.—As a community safeguard as well as an aid to the individuals, the department of health has opened a special ward at the Philadelphia General Hospital for the cure of drug fiends, who, under the new law regulating the sale of drugs, are suddenly deprived of their drugs.

Action Asked on Sewage Disposal.—In his annual report, Chief Engineer Webster of the Bureau of Surveys, urges on councils the necessity of giving their attention to the subject of sewage disposal. The small sewage disposal plant maintained by the city at Pennypack Creek has rendered excellent results to the bureau which has prepared a comprehensive plan of the sewage disposal for the entire city.

Cattle Disease Again Found.—The foot and mouth disease has broken out again in Frankford and other outlying districts to the north of Philadelphia. The State Sanitary Live Stock Board has issued a quarantine order for the districts north of Girard Avenue between the Delaware and Schuylkill rivers. The quarantine not only affects cattle but the transportation of fodder, hay, straw, skins and hides.

Polyglot Bulletins.—The Federated Medical Council has prepared twenty timely health talks to be printed in many languages and pasted on 300 bulletin boards erected by the child federation in courts and alleys of the most congested housing districts of Philadelphia. The Council is made up as follows: chairman, Dr. Samuel McClintock Hamill; secretary, Dr. William N. Bradley, and Drs. Howard Childs Carpenter, Charles A. E. Codman, Charles A. Fife, C. Lincoln Furbush, J. Claxton Gittings, Howard Kennedy Hill, Henry D. Jump, William Duffield Robinson and John F. Sinclair.

Maternity Opened.—The new maternity building of the Germantown Dispensary and Hospital, erected at a cost of about $35,000, was opened to receive patients, March 1. The building has been erected by Edward J. Moore as a memorial to his mother, Mrs. Marion Hardy Moore, and in the hall of the building a tablet has been installed bearing a suitable inscription. The building is of brick with terracotta trimmings, 38 by 140 feet, and is divided into two portions, one for free or semi-free patients, and the other for pay patients. In the first portion of the building there is one large ward, two small wards, operating, sterilizing and linen rooms, etc., and the pay wing is devoted entirely to private rooms.

Medical Institutions About Philadelphia.—A brick addition, one story high, 29 by 38 feet, to the Methodist Hospital is provided for in a contract just awarded.——A bureau of social research, with the general purpose of minimizing waste effort and coordinating the work of the city's social service agencies, has been established under the auspices of the Seybert Institution. The functions of the bureau are: To collect, classify and interpret facts underlying social conditions and social service in the city of Philadelphia; to aid in standardizing methods and forms for record keeping and interpretation, so as to render the facts gathered by welfare agencies available for measuring and interpreting social conditions aside from their utility in dealing with the individual cases; to assist in the study of the adequacy and efficiency of social service in the community; to make surveys of specific social problems and assist in the formulation of constructive policies and, when necessity demands; to draught legislation for the handling of such problems; to promote social research among other welfare agencies.—— The contract just awarded for a hospital building, for Maternity Hospital of the University of Pennsylvania, calls for three stories and basement, brick, stone and concrete and steel.

VERMONT

Deaths from Liquor Containing Wood Alcohol.—Twelve persons died at Bristol, November 2, as a result of drinking liquor containing wood alcohol purchased at a local drug store and consumed October 31.

Infantile Paralysis Clinic.—A free clinic was established at the Rutland Hospital, February 13, for persons who have suffered from infantile paralysis. The clinic was held under the direction of the Vermont State Board of Health by Dr. Robert W. Lovett of Harvard Medical School. The clinic was attended by about twenty-five out-of-town physicians and the members of the State Board of Health.

WEST VIRGINIA

Druggists Entertain Physicians.—The druggists of Martin's Ferry gave a dinner in honor of the physicians of the city, February 16.

Smallpox and Vaccination at Charleston.—An epidemic of smallpox that broke out in the jail at Charleston during the latter part of February, is believed to be the source of the numerous cases throughout the city. During one week 400 persons, including Governor Hatfield, himself a physician, and every member of the legislature and all state house employees were vaccinated. Strict quarantine is being enforced in all cases.

WISCONSIN

Gross Prize Awarded.—The Samuel D. Gross Prize of the Philadelphia Academy of Medicine for the year 1915 has been awarded to Dr. John Lawrence Yates, Milwaukee, for his essay entitled "Surgery in the Treatment of Hodgkin's Disease." The amount of this prize is $1,500.

Personal.—Dr. George H. Fellman, Milwaukee, has been appointed physician to the County Home for Dependent Children, Wauwatosa, to succeed Dr. George J. Jurss, Milwaukee. At a meeting of the board of trustees of the home, February 27, the appointment failed of ratification.——Dr. Jacob M. Furstman, LaCrosse, has been appointed a member of the State Board of Health, to succeed Dr. Charles H. Stoddard, Milwaukee.——While returning from a late call in the town of Chase, Dr. Robert J. Goggins, Oconto Falls, was pursued by wolves, February 22. They abandoned the chase when the lighted streets of the village were reached. ——Dr. Norman F. Hoffman, Milwaukee, was appointed superintendent of the State Tuberculosis Sanatorium, Wales, to succeed Dr. John W. Coon, Wales, resigned, and has taken up his new duties.——Drs. Frederick J. Gaenslen and Arthur J. Patek, both of Milwaukee, have been reelected chiefs of the surgical and medical staff, respectively, of the Milwaukee Children's Free Hospital.

WYOMING

Personal.—Dr. George A. Harris, Basin, after taking a course at the Army Medical School, Leavenworth, for six weeks, will sail for Europe, where he expects to take service under the Red Cross.

State Board Reappointments.—The governor has reappointed for a term of four years Dr. Herbert T. Harris, Basin, president of the State Board of Health; Dr. William A. Wyman, Cheyenne, secretary and executive officer; and Dr. Anna G. Hurd, Sheridan, as member.

GENERAL

Leper Home Bill Passed.—The House of Representatives, February 24, passed a bill to authorize the establishment of a home for lepers under the U. S. Public Health Service, and the bill is now before the Senate for consideration.

Posture League Luncheon.—The second annual luncheon of the American Posture League was held at the Hotel Astor, New York City, March 13. Invitations were extended to the general membership of the league and to others interested in the movement of the central committee on public health organization. The after-luncheon program set forth the educational, scientific and welfare aspects of the work of the organization. The president and founder of the league, Miss Jessie H. Bancroft, presided, and spoke on the "History, Plan and Work of the American Posture League."

Pathologists and Bacteriologists to Meet.—The American Association of Pathologists and Bacteriologists, of which Dr. Leo Loeb, St. Louis, is president, will meet in St. Louis, April 2 and 3. The meetings will be held in the Pathological Department of Washington University Medical School and in the library of the St. Louis University. The annual dinner will be held at the University Club, April 2. Preceding these meetings on April 1 will be held the annual meeting of the American Association for Cancer Research and the annual meeting of the International Associaiton of Medical Museums. These meetings will be held in the laboratories of the Washington University Medical School.

Bequests and Donations.—The following bequests and donations have recently been announced:

Chester, Pa., Hospital, $5,000 and the residue of the estate of Marietta Flower.

Children's Aid Society, Philadelphia, $1,000 by the will of Mrs. Harriet Morgan Frazier.

United Charities, Chicago, $22,400.81, the proceeds of a minstrel show given by the employees of the Chicago Telephone Company, Commonwealth-Edison Company and the Peoples Gas Light and Coke Company.

Hospital for Deformities and Joint Diseases, New York City, $700,000 by the will of Mrs. Cutter. This will is being contested.

The town of Dedham, Mass., to be used for the Elizabeth S. Capen Hospital fund from $50,000 to $100,000 by the will of Calvin W. Capen.

Celebrate Report Completion.—The joint committee in charge of the medico-actuarial mortality investigation, consisting of four medical directors of life-insurance companies and four actuaries, were given a dinner, February 26, by the Association of Life Insurance Medical Directors of America, at which about forty medical directors were present. The dinner was given in celebration of the completion of the medico-actuarial report, which has involved many months' labor and is contained in five volumes. Dr. William Evelyn Porter, New York City, president of the association, acted as toastmaster, and presented to each member of the committee a specially bound and suitably inscribed copy of the report.

For Medical Education in China.—The Rockefeller Foundation announced, March 7, that it would undertake the improvement of medical and hospital conditions in China. To this end the foundation has established a special organization to be known as the China Medical Board of the Rockefeller Foundation, the first object to which is the development of medical education. This is to include aid for the two medical schools in China, which are now inadequately equipped, the strengthening of the staffs of mission and other hospitals, assistance in the establishment of two modern tuberculosis hospitals, the establishment of six $1,000 scholarships to enable Chinese graduates in medicine to pursue studies abroad, and five scholarships for nurses for the same purpose. The idea is to build up a body of Chinese medical men who will take the lead in teaching the medical sciences. This action follows an exhaustive investigation of conditions by a special commission sent to China in 1914. The members of the medical board are Harry Pratt Judson, Dr. Francis Peabody, Roger S. Greene, Frank J. Goodnow, Simon Flexner and Wallace Buttrick, with John D. Rockefeller, Jr., chairman, and Roger S. Greene, resident director, with headquarters at Peking.

FOREIGN

American Scientific Society Honors W. Roux.—The professor of anatomy at the University of Halle, W. Roux, who originated the conception of growth and development as the result of mechanical causes, has been elected honorary member of the American Society of Naturalists. He founded in 1894 the *Archiv für Entwicklungsmechanik*, and is now in his sixty-fifth year.

Koch's Birthday Celebrated in Japan.—Japanese physicians have always celebrated the birthday anniversary of Robert Koch with a special meeting, since his death, and our German exchanges mention that this year was no exception to the rule. Fully 300 members of the profession gathered at Tokyo to do honor to the German scientist on his anniversary, December 11.

Deaths in the Profession Abroad.—Among the better known names on the published lists of German casualties are those of T. Groedel, Jr., of Bad Nauheim, who has been making a special study of roentgenography of the heart. Ahrens of Hamburg is also on the list.——Diphtheria contracted while doing volunteer hospital service is responsible for the recent death of R. Neuhauss of Berlin, aged 60. He published a manual of microphotography and also founded the *Photographische Rundschau* in 1864.——The death of David Matto, professor of bacteriology at the University of Lima, aged 56, is reported from Peru. He was long editor in chief of the *Cronica Medica*, published there, and has served in the senate and as a member of the cabinet. He visited this country as the official delegate from Peru to the International Tuberculosis Congress, and has usually represented Peru in the various Pan-American congresses.

WAR NOTES

Epidemic Diseases.—The number of cases of cholera is lower than in the fall, but still Austria reports in a recent week 24 cases, with 3 deaths; Hungary 165 cases, with 45 deaths, and Croatia 114, with 55 deaths. Only a very few cases have been found in Germany. During the same week Austria had 242 cases of exanthematous typhus, and Germany 16 cases in physicians or attendants at the Russian prisoners' camps; the number of cases of typhus in these five large camps has not been made public.

Part of the Toll Paid by the Profession to the War.—Our German exchanges state that, to January 15, 216 physicians are said to have been wounded; 56 have fallen; 23 have died from disease; 11 from wounds or accidents; 40 are known to be in the enemy's hands and 94 are missing. This is a total of 450 out of 12,000. As already mentioned elsewhere, the French, to January 20, have listed 260 wounded, 440 missing, 507 incapacitated by sickness and 90 killed, a total of 1,300 out of 6,500 medical officers with the army.

The War and Münster University.—The University of Münster, in northwestern Germany, announced in its report,

January 15, that of its 2,135 male matriculated students, 1,069 are with the colors, and 33 have won the iron cross and 2 others still other decorations. One member of the faculty and 45 of the students have fallen on the field of battle. Thirty-two docents and 24 other members of the faculty are serving in the Red Cross or in the trenches, and 9 have won the iron cross.——The University of Kiel also reports that 1,284 of its 1,778 students are at the front, including 506 of its 675 medical students.

Morbidity and Mortality in the British Service.—From Aug. 1, 1914, up to Feb. 11, 1915, there have been no cases of typhus fever among the Expeditionary Forces or the British Forces in the United Kingdom. There have been 625 cases of typhoid fever, with 49 deaths, among the Expeditionary Forces and 262 cases, with 47 deaths, among the troops in the United Kingdom. No cases of cholera have been reported. Among the troops in the United Kingdom one case of smallpox has occurred. There have been 196 cases of scarlet fever, with 4 deaths, in the Expeditionary Forces, and 1,379 cases, with 22 deaths, among the troops in the United Kingdom. Diphtheria caused 6 deaths out of 783 cases among the troops in the United Kingdom. There were 175 cases of measles, with 2 deaths, among the Expeditionary Forces, and 1,045 cases, with 65 deaths, among the troops in the United Kingdom. There were 215 cases of dysentery, with 1 death; 1,508 cases of pneumonia, with 351 deaths, and 62 cases of cerebrospinal meningitis, with 26 deaths, among the troops in the United Kingdom. The returns for smallpox, diphtheria, dysentery, pneumonia and cerebrospinal meningitis in the Expeditionary Forces were not available at the time this report was made. Included under typhoid fever were 25 cases, with 4 deaths, among the Indian troops, and under measles 5 cases, with no mortality.

Aid for Belgian Physicians.—The Committee of American Physicians for the Aid of the Belgian Profession is working in cooperation with the American Commission for Relief in Belgium. The commission is well organized and through the medium of American, Spanish and other diplomats it alone is permitted to send the necessities of civilian life into all parts of Belgium. The accounts of the commission are audited weekly by a well-known company of international repute. The commission has representatives in Rotterdam, Brussels and many other points in Belgium. Until recently, Brussels was the only city through which imports could be distributed to various points in Belgium. Within the last few weeks, however, such privileges have been granted for Liege and other Belgian cities. Positive assurances have been given by foreign and military departments of the warring countries that the flag of the American commission will be respected under all circumstances. Through the instrumentality of the commission, diplomatic arrangements have been perfected whereby not only food and clothing but drugs, instruments and other supplies may be sent for civilian use, only, in Belgium. It is through this commission, as has been said, that the committee of American physicians arranges for the distribution of its supplies among civilian physicians and their families in Belgium.

An arrangement has been entered into by the committee with the commission that the boxes sent shall have uniform contents and that they shall respect all the laws of neutrality by putting on the boxes no mark except the yellow band painted around the box. This is the quarantine color and indicates that the box is for physicians. The first work of the committee was to learn something of the cost of supplies and to get into communication by cable with physicians in Holland and Belgium regarding the most urgent need in the way of drugs and professional supplies. Up to the present time the committee of American physicians have found the need so urgent that it has been sending food alone. A wholesale grocery house in New York has agreed to produce standard boxes of food at the lowest possible cost and to pack them in a uniform manner in full compliance with the laws of neutrality. They provide two standard boxes, one for infants and one for adults. The contents of these boxes were suggested by Dr. Harvey Wiley and contain a maximum of food at a minimum of cost. Each box for an adult contains the following articles of food:

3—3 lb. Tins Baked Beans
3—1 lb. Tins Pink Alaska Salmon
1—5 lb. Cotton Sack Rolled Oats
1—5 lb. Cotton Sack Yellow Corn Meal
1—5 lb. Cotton Sack Yellow Split Peas
1—2 lb. Cotton Sack Granulated Sugar
1—3 lb. Cotton Sack 70/80 Cal. Prunes
1—7 lb. Cotton Sack Wheat Flour
1—1 lb. Cotton Sack Salt.
1 Can Opener.

The first 1,625 boxes were purchased at a cost of $2.20 per box. On February 26, owing to an increase in the cost of materials, the price of each box was advanced until further notice to $2.30. At this latter price 352 additional boxes have been forwarded.

In his weekly report the treasurer calls attention to the fact that the recent notes issued by the belligerent countries have caused serious concern for the welfare of Belgium. The restrictions rendered necessary by the recent drastic war measures have greatly increased the difficulties of transferring supplies to Rotterdam and thence to Belgium. The English government has withdrawn its monthly contribution of $7,000,000 for the relief of Belgian civilians. The need for extra effort on the part of Americans is, therefore, more urgent. The ships of the American Commission for Relief in Belgium are the only ships whose safety the belligerent governments guarantee. This commission is undertaking to deliver the supplies furnished by the Committee of American Physicians for the Aid of the Belgian Profession.

WEEKLY REPORT

The report of the treasurer for the week ending March 6, 1915, lists the following contributions:

Dr. Grace Wolcott, Boston, Mass.	$ 10.00
Dr. Harold E. Perry, New Bedford, Mass.	10.00
Pittsburgh College of Physicians, Pittsburgh, Pa.	45.00
Dr. Daniel R. Robert, Brooklyn, N. Y.	5.00
Mrs. Charles E. Paddock, Chicago, Ill.	5.00
Dr. Chas. S. Wright, Act. Asst. Surg., U. S. A., Portland, Me.	5.00
Dr. E. C. S. Taliaferro, Norfolk, Va.	30.00
Dr. William H. Wilder, Chicago, Ill.	25.00
The Thunder Bay Medical Soc., Ontario, Canada	25.00
Garland Co.-Hot Springs Medical Society, Hot Springs, Ark.	25.00
Dr. J. Shelton Horsley, Richmond, Va.	5.00
Dr. E. F. Dodds, Missoula, Mont.	5.00
Dr. George R. Little, Wichita, Kansas	25.00
Dr. James A. Jackson, Madison, Wis.	5.00
Receipts for week ending March 6	$ 225.00
Previously reported receipts	4,386.50
Total receipts	$4,611.50
Previously reported disbursements—	
1,625 standard boxes of food at $2.20	$3,575.00
352 standard boxes of food at $2.30	809.60
	$4,384.60
Disbursements week ending March 6 (100 boxes of food at $2.30 per box)	230.00
Total disbursements	$4,614.60
Deficit	$ 3.10

F. F. SIMPSON, Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

LONDON LETTER

LONDON, Feb. 19, 1915.

The War

THE MEDICAL SERVICE

In his last dispatch, Sir John French, the commander in chief of the British army in France, commends the untiring zeal, skill and devotion of the army medical corps since the commencement of hostilities. He states that whether at the front under conditions such as obtained during the fighting on the Aisne, when casualties were heavy and accommodation for the reception of the wounded had to be improvised, or on the line of communications, where an average of 11,000 patients have been daily under treatment, the organization of the medical services has always been equal to the demands made on it. The careful system of sanitation introduced into the army has, with the assistance of other measures, kept the troops free from any epidemic, in support of which it is to be noticed that since the commencement of the war only about 500 cases of typhoid fever have occurred. For the first time in war, motor ambulance convoys have been organized; twelve hospital trains ply between the front and various places.

CONSPICUOUS BRAVERY OF AN ARMY SURGEON

Lieut. A. M. Leake of the army medical corps was awarded for conspicuous bravery in the Boer War in 1902 the highest decoration, the Victoria Cross. He went up to a wounded man and attended him under heavy fire from forty Boers at a distance of 100 yards. He then went to the assistance of a wounded officer and was shot three times, but would not give up till he rolled over exhausted. He has distinguished himself again in the present war by rescuing while exposed to constant fire a large number of wounded lying close to the

enemy's trenches. As no higher decoration could be awarded to him than his previous one, he has been granted a clasp to wear with the cross already gained, a distinction without precedent.

BLINDED IN WAR

One of the saddest of all the tragedies of war is the loss of the sight of both eyes. So far twenty-two cases have occurred in the British forces. Probably the greater dispersiveness of modern missiles renders this accident more common than in previous wars. Provision has been made to send all soldiers blinded at the front to the second London General Hospital where they can receive the highest skilled attention. Arrangements have also been made for the after-care of such cases. Mr. C. Arthur Pearson, the newspaper proprietor, and president of the National Institute for the Blind, is the chairman of the "Blinded Soldiers' and Sailors' Care Committee" formed for this purpose. A philanthropist, Mr. Otto Kahn, has placed at the disposal of the committee, for the purposes of a hostel, a large house with fourteen acres of gardens and grounds. In the grounds will be installed an open-air club, where those of the blind men who wish to live in the country will be taught poultry culture, garden and farm work, way finding, marketing, and sports and games. A fund has also been started for providing typewriters, writing frames and specially devised games.

RETURN OF BRITISH WOUNDED PRISONERS FROM GERMANY

The first 110 prisoners of war exchanged with the Germans because invalid for future service have arrived in Holland. Some have lost a leg, others an arm, some are blind, one who was wounded in the head has become a deaf mute.

CAREERS FOR WOMEN

The removal of a large number of men from civilian life has had a great effect in opening careers for women in the medical and other professions. Medical posts are now thrown open which before the war were reserved for men, and some of these are going begging because the demand for women doctors is greater than the supply. Women teachers are replacing men in the schools. Since the war there has been an increase of 25 per cent. in the employment of women in London banks. One curious employment is in the letter censors' office for which women are particularly suited by their knowledge of languages. There is also a greater demand for women pharmacists and dentists. The London School of Medicine for Women is being considerably enlarged. Building operations are already being begun. The anatomy department is to be doubled, and the physiologic department to be extended and provided with a new demonstrating theater, library and research rooms. Though the need of this extension is not the result of the war, this has made it more pressing. While the number of male medical students has shown a steady decline during the past six years, the number of female students has increased, especially in the last two years. The number of women on the medical register has increased from two forty years ago to about 1,000 at the present time. Of these, 600 were educated at the London school. During the past six years the annual entry has doubled, and there are now 220 students in attendance; but the number desiring to enter is greatly in excess of this, and it is proposed to increase the accommodation to 375. Speaking at a meeting to raise funds for the purpose, Sir Alfred Keogh, director general of the army medical corps, paid a tribute to the work of women physicians in the war. He had received unsolicited letters from Paris and Boulogne stating that the work of women physicians was beyond praise. So impressed was he that he had asked two of the staff to come to London and do bigger work. He asked them to take charge of a hospital of 500 beds and, if they pleased, of a hospital of 1,000 beds.

THE CONTROL OF TYPHOID FEVER AT HOME

The War Office, after consultation with the Local Government Board (the authority which controls sanitary administration), has decided that a special record is to be kept by military sanitary officers concerning each case of typhoid fever occurring among soldiers in this country. The objects in view are (1) to ensure that each case is made the subject of inquiry; (2) to provide material for further inquiry when multiple cases occur; (3) to compare the experience of various military units, and (4) to enable a summary to be prepared of the experience of the army as a whole and in different parts of it. Military medical officers are required to inform the health officer of the sanitary district in which troops are stationed of any cases of typhoid fever which may occur. The health officer is to cooperate with these officers and with military sanitary officers in tracing the source of infection and removing any conditions favoring spread of the disease. The health officer will be in a position to give information as to the relation of each case to causes of infection present in his district, or, if the infection has been contracted elsewhere, to communicate on the subject with the health officer of the district concerned.

BERLIN LETTER

BERLIN, Feb. 9, 1915.

Personal

DEATH OF PROFESSOR OLSHAUSEN

Professor Olshausen of Berlin died February 1 at the age of 79. He was one of the founders of modern gynecology who had done pioneer work especially in the field of operative gynecology. His career began as assistant of the noted professor of gynecology, Edward Martin, the father of Professor August Martin, now living in Berlin as professor emeritus, and who was then working at the Berlin gynecologic clinic. From Berlin Olshausen went as assistant to the gynecologic clinic at Halle which was under the direction of Hohl. There he became a member of the faculty in 1862 and in the same year became professor extraordinary and in 1864 was appointed successor of Hohl. In Halle he remained until 1887, in spite of the fact that he was frequently called to larger universities. Then he accepted the call to Berlin as successor of Professor Schröder whose early death had left vacant the position of director of the university gynecologic clinic. In this position he remained until 1910, when he resigned his position on account of his advanced age. The number of his works is extraordinarily large. We will mention only those on total hysterectomy, the ventral operation for prolapse and retroversion, on the supplemental diagnosis of the course of birth by examination of the child's skull, and many others. In book form he published "Diseases of the Ovaries," "Mechanism of Labor" and "Practical Contributions to Gynecology." His contributions to the larger compilations are very numerous. With Professor Veit he elaborated Schröder's "Text-Book of Obstetrics." Since 1887 he has been the editor of the *Zeitschrift für Gynäkologie und Geburtshilfe.*

DEATH OF PROF. E. VON ESMARCH

February 5 the former director of the hygienic institute at Göttingen, Prof. E. von Esmarch, died at the age of 59. He was the son of the well-known surgeon, Friedrich von Esmarch, by his first marriage (Esmarch married for his second wife, an aunt of our empress). Esmarch began his scientific career as assistant to Professor Schweigger at the Berlin University eye clinic. Then he turned his attention to hygiene and became an assistant of Robert Koch. Later he was appointed custodian of the Museum of Hygiene. In 1890 he became a member of the faculty and when Robert Koch gave up his position as university teacher he assumed the direction of the hygienic institute and the delivery of lectures on hygiene. In 1901 he was called to Königsberg as professor extraordinary, and in 1897 he became regular professor. In 1899 he moved to Göttingen. Illness compelled him some years ago to resign his position. His articles are chiefly on the subject of disinfection, in which he achieved some practically valuable results. His investigations on the filtration of water and bacteriologic researches on diphtheria and cholera, and his investigation on the hygiene of churchyards, should be mentioned. A pocket manual on hygiene, published by him, has passed through several editions.

DEATH OF PROF. JULIUS ARNOLD

The noted Heidelberg professor of pathologic anatomy, Julius Arnold, died February 6, at the age of nearly 80. He was introduced into science by his father, Friedrich Arnold, the Heidelberg anatomist and physiologist. After a journey for study, he became the assistant of his father and privatdocent at Heidelberg. Then he devoted himself to normal histology and the history of evolution. Later he became pathologic anatomist. A special professorship for pathologic anatomy was established by his efforts at Heidelberg, and in 1860 he became professor extraordinary and in 1870 regular professor. In 1907 he retired. His scientific work treated mostly on the eye but also on the blood vessels and the blood-forming organs. He gave a great deal of attention to the histology of tumors. In the field of hygiene he made experimental investigations on the inhalation of dust.

New Institute

The senate of the Kaiser Wilhelm Society for the Advancement of Science at a session held on January 23, determined to break ground for the projected Kaiser Wilhelm Institute for Physiology and for the Study of the Brain. The Kaiser Wilhelm Institute for Biology is soon to be opened at Dahlem.

The War

THE FOOD SUPPLY

Additional special regulations have been promulgated for the use of flour and bread.

Under a provisional ordinance, the commission has determined on an average of 225 grams of flour per day for each person. As was to be expected, the population have adapted themselves to these new regulations without any opposition. Naturally, complaints arise here and there with reference to the deficient palatability of the new breadstuffs. For this reason, at the last meeting of the Berlin Medical Society, Professor Albu proposed special regulations for the sick. By all the other speakers it was emphasized that hitherto no injury of patients by the new bread had been observed objectively, and that for this reason there was no occasion for any such regulations. Further trials were needed to determine first whether exceptions should be made in favor of patients. In other respects everything is being done to make the cultivation and harvest of grains for this year as abundant as possible. Moreover, we will not be left in the lurch by the neutrals in the supply of grain. We have been supplied by Roumania with a considerable quantity of wheat, naturally at an increased price, but we can pay it, and not only are sufficient means at hand for this purpose but also for the support of the army with all possible presents, including delicacies.

THE CRIPPLES MADE BY THE WAR

Already the treatment of the wounded and of the invalids from the war has been organized on a large scale. On the eighth, there occurred, in the presence of the empress, an extraordinary meeting of the German Association for Care of Cripples, which is under her protection. It was attended by the representatives of many state and community officials, private organizations and prominent orthopedists and nerve specialists. The first address was made by Professor Biesalski on the means for assistance and the outlook for the care of the war cripples. He showed the satisfactory results which are secured by prophylactic orthopedics by the example of a number of wounded and of children from the home for cripples conducted by him at Zehlendorf near Berlin. He stated as a principle that there need not be any cripples if the wounded are cared for in the right way and at the right time.

Professor Schwiening described the provisions made by the army management for the cripples of the war. As early as the tenth day of the mobilization there were 100,000 beds available, and the number has doubled since that time. The military authorities, however, not only seek to heal but also aim to apply measures to avoid the unfavorable results of wounds; arrangements for this had been already provided in time of peace. In part, special sections for orthopedic work were established or contracts were concluded with private institutions. A large number of orthopedists have been secured as consultants for numerous hospitals. For instance, in connection with the Garde-Korps, twenty-four medical-mechanical institutions are at the service of the military authorities. Also, arrangements have been completed with 107 health resorts for the after-treatment of the wounded and the sick. Artificial limbs and apparatus are procured and renewed by the military authorities. Special institutions have been established for the one-armed and the blind, and others will follow. Advisers with reference to trades are attached to the hospitals for those who can no longer follow their previous trades or think they cannot. Finally he spoke of the special pensions, as the field allowance and the increase of pay for mutilation will remain as permanent compensation for those crippled in the war.

Kirchner, the ministerial director, spoke of the provisions made by the national government for our returned soldiers. In this address he started with the fact that from the investigation of Krauss on 100 accidental injuries, after six years 25 per cent. were to be regarded as socially declassed; 38 per cent. had completely adapted themselves economically and 3 per cent. had raised themselves in the economic scale. Conditions must be made better than this in the case of our wounded in the war, in order to conserve every force capable of activity to compensate for the great loss of men. It is a matter for the state, especially to supplement the social philanthropy of the military authorities. In this work is included advice as to occupation, training for a trade by a master or in a trade school or in cripple homes, and care to make use of the acquired ability to work by the state employing the crippled workers in its own establishments and so giving the example to other employers of labor and workmen. As agents of this social philanthropy there are available in addition to the German Association for the Care of Cripples and the Red Cross, especially the institutions of social insurance and the great labor unions, and the employment bureaus. All must work together in unison if the work is to be crowned with success. This can be accomplished only if the state takes the organization in hand as has already occurred in the provinces of Brandenburg and Westphalia.

PARIS LETTER

PARIS, Feb. 18, 1915.

The War

NATIONAL SCHOOL FOR MUTILATED SOLDIERS

At the suggestion of the minister of the interior, it has been decided to found a national school for soldiers who have been mutilated by wounds of war. The institution will be housed in the buildings of the sanatorium of Saint Maurice in the department of the Seine. These buildings are capable of taking in six or seven hundred pensioners. Mutilated soldiers, after undergoing medical and surgical treatment, will be sent to this school, where they will first be provided with the necessary apparatus and then given an industrial education. There are near the Saint Maurice sanatorium some great workshops which will be perfectly adapted to this technical instruction. This national school which will be administered under the minister of the interior by the assistance publique with the aid of the minister of war, will not interfere with the exercise of private initiative which is already engaged on the problem (THE JOURNAL, Dec. 19, 1914, p. 2241). A national institution, on the other hand, will serve to stimulate and to regulate all the private charities now operating or hereafter founded.

RÔLE AND SURGICAL IMPORTANCE OF THE SANITARY TRAINS

At one of the last sessions of the Société de chirurgie, Dr. Heitz-Boyer, surgeon of the hospitals of Paris, who during the course of a recent mission, had the opportunity of studying the operation of the sanitary trains, read an interesting paper on the subject. The evacuating trains should remove as many as possible of the wounded as quickly as possible from the front and, generally speaking, from the war zone in order to bring them, as quickly as possible, and under the best conditions of transportation, to the hospital where they can recuperate. To fulfil these conditions the sanitary trains should: (1) be completely interchangeable or as nearly so as possible; (2) carry the wounded both seated and in beds; (3) permit wounded men to be brought in and placed in the interior of the compartments without removal from the litters. In addition to these three primary technical necessities, there are various others with regard to lighting, heating, etc.

In times of peace, three types of trains were planned: (1) permanent trains, practically hospitals on wheels, composed of cars specially constructed and furnished for the transportation of sick or wounded patients in a serious condition; (2) improvised trains composed of freight cars fitted up temporarily to meet emergencies; (3) ordinary passenger coaches for the sick and wounded who are able to travel seated. Experience has shown that improvised trains are so lacking in comfort as to be unsuitable for the transportation of seriously wounded men. After three months, therefore, the military health service has created a new type of sanitary train called "semipermanent," which constitutes an important improvement. It is composed of passenger coaches some of which have been arranged to receive directly the litters of the wounded who need to be thus transported. These trains are mixed and carry 100 on litters and 300 seated. At present sixty trains of this type are in use and soon twenty others will be in circulation. They are warmed by steam, well provided with springs, well lighted during the day by windows and at night by gas. The only desirable condition lacking, so far as the coaches for the reception of the men on litters are concerned, is complete interchangeability. Partial interchangeability, however, has been sufficient to supply the conditions indispensable for medical supervision.

Association News

THE SAN FRANCISCO SESSION

Suggestions for Making the Return Trip Eastward Over a Northern Route

Inquiries concerning routings to and from San Francisco for the annual session of the American Medical Association prove the interest taken in the announcement of the specials which are being planned for the going trip (Association News, THE JOURNAL, January 30, p. 457, February 6, p. 527, and February 13, p. 604). Except when it is necessary to make the trip as quickly as possible, most of those who go to San Francisco for the session will use different routes going and coming. Where the more direct routes are used for both directions, the descriptions already given will serve to give a general idea of scenic attractions of the routes which have been described. While the northern routes are available for going, it is probable that they will be used more generally for the return trip, as in most instances this will be the part of the journey that is made in a leisurely manner. Consequently, the lines described are followed from the west toward the east. In purchasing tickets to San Francisco, it is necessary to determine the route for the entire trip before the round trip ticket is bought. If "direct routes" in both directions are selected, the rates which have been quoted prevail (THE JOURNAL, January 30, p. 458, and February 27, p. 758). But where one way is by a northern route, that is, via Portland, Tacoma, Seattle, Victoria and Vancouver, the cost of the railroad ticket is $17.50 higher. For detailed information about possible routes and cost of transportation, including railroad fare and Pullman accommodations, local ticket agents should be consulted.

To return from San Francisco by one of the northern routes, the start from San Francisco should be made in the evening over the Shasta Route, which will bring the traveler the next morning to a point where this wonderful mountain will be in view and throughout the day its snow-capped peak will be the one fixed object in the ever changing landscape. During the night, the train has traversed the Sacramento Valley. It passes Lassen Peak and through the Sacramento canyon and then skirts Mount Shasta in the Klamath Mountains of northern California. In season, arrangements may be made for an excursion by automobile to Crater Lake National Park in southern Oregon from a point on the Southern Pacific. Klamath Falls Branch to Medford. Main line railroad tickets are accepted on the branch without extra charge, and the auto fare for this trip is $18. Nearing the California boundary, the railroad passes through the fertile Rogue River Valley and then in western Oregon through the Willamette Valley to Portland, on the second morning after leaving San Francisco. Several hours or a day may be spent in Portland. From Portland to Tacoma is a journey of about five hours, across the Columbia River and past Mount St. Helens and Mount Rainier — or Seattle may be the objective point, which adds about one and one-half hours to the journey. Between Tacoma and Seattle there is an excellent train service and also a well-equipped fast electric line. For this section of the journey, all or part of it, may be substituted the boat trip from San Francisco to Portland, or Tacoma or Seattle, or any of these divisions of the trip may be made by boat, as preferred.

THE CANADIAN PACIFIC

If the return trip is to be made via the Canadian Pacific, from Seattle, the route may be by boat to Vancouver through Puget Sound, and through the picturesque gateway which leads into the port of Vancouver, or by a direct train connection. The Puget Sound trip will occupy a day, and the start should be made from Seattle early in the morning, the boat leaving about 8:30, reaching Victoria about 1 and leaving there about 1:45, arriving in Vancouver in the evening shortly after 6. Vancouver is far enough north so that after the arrival of the boat there will still be several hours of daylight in which to see something of this city. Possibly one of the most unique of its attractions, at least to those who come from the east, is Stanley Park, a magnificent natural forest of "big trees."

In traveling over the Canadian Pacific, the ride through the Canadian Rockies should be taken by day. This can readily be done, as at convenient points excellent hotels are at the service of the traveler and comfortable Pullman accommodations can be provided for these daylight journeys.

Leaving Vancouver early in the morning, about 8:30, after passing through the canyons of the Fraser and Thompson rivers, within view of Mount Baker, Sicamous is reached in the late evening. If, for any reason, the trip through Puget Sound and the stop at Vancouver is not chosen, a direct rail connection from Seattle is possible, using a direct line of about 135 miles from Seattle to Mission Junction where the main line of the Canadian Pacific is reached and followed to Sicamous. At this point is a well-equipped hotel where the night should be passed. Leaving about 9 the following morning, the road follows the Illicillewaet River to Glacier, near the summit of the Selkirks. The train should arrive there about 2 in the afternoon, and a twenty-four hour stop will well repay the traveler. Leaving the following day on the same schedule, a stop should be made at Field, about five hours' distant through the mountain ranges. Here, another twenty-four hours can well be devoted to visiting points of interest, or if time does not permit this layover and Field is not visited, a further run of approximately three hours reaches Laggan, where the night and the following day, at least, should be spent. About an hour and a quarter east of Laggan is Banff. This short run may be made by leaving Laggan either about 10:30 in the morning, or about 9 in the evening. The morning train permits spending the afternoon at Banff and leaving by late bedtime. However, twenty-four hours is a short stay at either Banff or Laggan. Trains for the east leave Banff, as has been indicated, about noon and in the late evening, and pass out of the foothills of the Rockies after a short run, going through the fertile farm regions of Alberta and Saskatchewan. At Moose Jaw, a branch going in a southeasterly direction through the rich wheat belts of North Dakota and Minnesota reaches St. Paul. This brief outline of this route aims simply to suggest the points at which stops are usually made and to indicate the shortest time in which the main points of interest can be visited. If the Canadian Rockies are to be toured in a thorough manner, the stop at each point may be extended as the time at the disposal of the traveler permits. The hotels which have been named are all well conducted at rates which are reasonable. The American plan prevails and the average rate is about $5 per day per person, varying slightly within reasonable limits in accordance with the location of the room, etc.

Other northern routes will be mentioned in a succeeding issue.

Marriages

FRANK RIEGEL WENTZ, M.D., Allentown, Pa., to Miss Kathryn M. Shoemaker of Chestnut Hill, Philadelphia, February 20.

RALPH SPENCER CONE, M.D., to Miss Florence M. Sutton, both of Westwood, N. J., at Hackensack, N. J., February 11.

JOHN WILLIAM L. BRENNAN, M.D., St. Louis, to Miss Nellie Lowe of Dubuque, Ia., at Decatur, Ill., February 16.

ROBERT P. C. WILSON, M.D., Marshall, Mo., to Miss Helen Taylor Arehart of Washington, Ohio, February 17.

JOHN T. WINGATE, M.D., of Platte, S. Dak., to Miss Bertha Crane of Geddes, S. Dak., February 13.

CLYDE LOTTRIDGE CUMMER, M.D., to Miss Marienne Dix North, both of Cleveland, February 25.

GILES R. PEASE, M.D., to Mrs. M. B. Goyer, both of Redwood Falls, Minn., February 17.

ALONZO E. MACK, M.D., to Miss Margaret Wilson Muir, both of Omaha, Nov. 17, 1914.

THOMAS C. BEELER, M.D., to Miss Mary Carter, both of Guymon, Okla., recently.

Deaths

Frank Dean Bain, M.D. Bellevue Hospital Medical College, 1872; a Fellow of the American Medical Association; president of the Ohio State Medical Association in 1905 and 1906; formerly president of the Northwestern Ohio Medical Society and Erie Railway Surgeons' Association; surgeon of the Chicago and Erie, Cleveland, Columbus, Cincinnati and St. Louis and Toledo and Ohio Central railways at Kenton, Ohio; formerly major surgeon, Second Ohio Infantry, U. S. V., in charge of the Reserve Hospital of the First Army Corps in Porto Rico during the Spanish-American War; formerly secretary of the Board of Health of Kenton, Ohio; died at his home in Kenton, February 21, from angina pectoris, aged 64.

John Patrick McGowan, M.D. Bellevue Hospital Medical College, 1888; a member of the Medical Society of the State of New York; American Urological Association and Association of Military Surgeons of the United States; consulting surgeon to St. Bartholomew's Hospital; consulting genito-urinary and dermatologic surgeon to the French Hospital, New York City; visiting physician to the New York Foundling Hospital; brigade surgeon Naval Brigade, N. G., N. Y.; passed assistant surgeon, U. S. Navy, during the Spanish-American War with service on the gunboat *Yankee*; assistant surgeon and surgeon, N. Y. N. M.; died at his home in New York City, February 28, aged 49.

Henry Lambard Nichols, M.D. Medical School of Maine, Brunswick, 1845; a Fellow of the American Medical Association; and for more than half a century a practitioner of Sacramento, Cal.; secretary of the state of California under Governor Haight; once president of the Sacramento County Board of County Supervisors; at one time a trustee of the state library; for six years a member and at one time secretary of the State Board of Health; for several terms health officer of Sacramento city and county; died at his home in Sacramento, February 16, aged 91.

Henry Cutler Baldwin, M.D. Harvard Medical School, Boston, 1884; a Fellow of the American Medical Association; for many years a member of the staff of the Massachusetts General Hospital in the department of nervous diseases; medical expert of the Boston Elevated Railway Company; for several years a member of the advisory board of visitors, public institutions and chairman of the board of trustees for the insane, in Boston; one of the best-known neurologists of New England; died at his home in Boston, February 25, from acute nephritis, aged 55.

John Matthew Kara, M.D. College of Physicians and Surgeons, Chicago, 1910; a Fellow of the American Medical Association; and a well-known Bohemian practitioner of Chicago, who went to Europe last fall as a member of the Bohemian-American Red Cross unit; died in Skopilje, Servia, February 27, from scarlet fever contracted during his work in war hospitals, aged 27.

Colbert Hanchett Cannon, M.D. National Medical University, Chicago, 1905; Hering Medical College, Chicago, 1906; formerly lecturer on pediatrics in Hering Medical College; a member of the Oregon State Medical Association; from 1879 to 1894 an official of the Great Northern Railway; died at his home in Eugene, Ore., February 18, from organic heart disease, aged 68.

Fred W. A. Brown, M.D. McGill University, Montreal, 1892; a Fellow of the American Medical Association; for four terms county physician of Winnebago County, Wis.; a specialist on diseases of the skin; at one time assistant in the Northern State Hospital, Winnebago; was found dead in his office in Oshkosh, Wis., February 20, from angina pectoris, aged 52.

Hugh Lewis Sutherland, M.D. Tulane University, New Orleans, 1873; of Benoit, Miss.; formerly a Fellow of the American Medical Association; a member of the Mississippi State Medical Association; health officer of Bolivar County, Miss., for many years; died at the home of his daughter in Cleveland, Miss., February 17, from cerebral hemorrhage, aged 66.

Charles Eugene Lack, M.D. University of Pennsylvania, Philadelphia, 1895; a Fellow of the American Medical Association; assistant surgeon to the Methodist-Episcopal and Norwegian hospitals, Brooklyn; surgeon to the Coney Island Hospital and clinical assistant in the Brooklyn Eye and Ear Hospital; died at his home in Brooklyn, February 26, aged 43.

Patrick James Greely Waldron, M.D. Creighton Medical College, Omaha, 1897; a Fellow of the American Medical Association and one of the leading practitioners of the Black Hills; coroner of Pennington County, S. Dak., and city physician of Rapid City; died at his home in Rapid City, February 14, from pneumonia, aged 42.

Herman Rose, M.D. University of Greifswald, Germany, 1872; a Fellow of the American Medical Association; once coroner of Webster County, Iowa, and president of the local German-American Alliance; died at his home in Fort Dodge, Ia., February 19, from disease of the kidney, aged 59.

George H. Rhoads, M.D. Jefferson Medical College, 1879; of Tobyhanna, Pa.; a Fellow of the American Medical Association; a member of the Coolbaugh Township Board of Education; died in a sanatorium in Savannah, Ga., February 25, from cerebral hemorrhage, aged 58.

John T. Iams, M.D. Bellevue Hospital Medical College, 1871; a Fellow of the American Medical Association; at one time vice-president of the Pennsylvania Training School, Morganza; died suddenly at his home in Waynesburg, Pa., February 15, from heart disease, aged 68.

Marshall Jacob Brown, M.D. Queens University, Kingston, Ont., 1856; surgeon in the Frontenac Cavalry during the Fenian Raid in 1866; for many years a practitioner of Cataraqui, Ont.; since his retirement a resident of Kingston; died at his home, February 14, aged 83.

John Jacob Blumer, M.D. University of Pennsylvania, Philadelphia, 1868; for many years a practitioner of New Glarus, Wis., but for four years a resident of Milwaukee; died at his home in that city, February 10, from carcinoma of the stomach and intestines, aged 71.

Joseph H. Moore, M.D. Missouri Medical College, St. Louis, 1873; a specialist in electrotherapeutics of Washington, D. C.; chief of staff of the quarantine hospital in St. Louis during the yellow-fever epidemic; died at his home in Washington, February 14, aged 65.

Frank Munson Stagg, M.D. College of Physicians and Surgeons in the City of New York, 1898; of Passaic, N. J.; at one time assistant chief of the volunteer fire department of Passaic; died in a hospital in New York City, February 15, from heart disease, aged 40.

Gerald O. Edmunds, M.D. College of Physicians and Surgeons, Chicago, 1892; a Fellow of the American Medical Association; for eight years coroner of Benzie County, Mich.; died at his home in Honor, Mich., February 11, from cerebral hemorrhage, aged 48.

John Harlan Van Deren, M.D. Pulte Medical College, Cincinnati, 1893; a Fellow of the American Medical Association, one of the best-known practitioners of Cynthiana, Ky.; died in the Harrison Hospital in that city, February 14, from pneumonia, aged 44.

Henry Cecil Haven, M.D. Harvard Medical School, 1879; a member of the Massachusetts Medical Society; president of the Stockbridge Golf Club; a prominent practitioner of western Massachusetts; died at his home in Stockbridge, February 19.

Lycurgus B. Walton (license, Tennessee, 1889), a practitioner of Robertson County since 1848; formerly a member of the Tennessee State Medical Association; died at his home in White House, Tenn., February 13, from senile debility, aged 87.

Francis M. Magers (license, Indiana, 1897), a member of the Indiana State Medical Association; since 1865 a practitioner of Churubusco, Ind.; died at his home in that place, February 15, from disease of the heart and kidneys, aged 77.

Robert Ray Wilson, M.D. University of Toronto, 1914; an officer of the University of Toronto Training Corps and on orders for active service in Europe; died at his home in Toronto, January 22, from lymphosarcoma, aged 24.

James Richmond, M.D. College of Physicians and Surgeons, Chicago, 1887; a member of the Wisconsin State Medical Society; died suddenly in his home at Loyal, Wis., February 13, from heart disease, aged 57.

Mary F. Munson, M.D. Hahnemann Medical College of the Pacific, San Francisco, 1886; one of the first women practitioners of Toledo, Ohio; died at the home of her daughter in that city, February 14, aged 84.

John A. Ladd, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1856; surgeon of U. S. Volunteers during the Civil War and one of the oldest practitioners of Iowa, died at his home in Traer, February 13, aged 84.

Marcus L. Fullenwider, M.D. Rush Medical College, 1875; formerly of Mechanicsburg, Ill., but for thirty years a resident of Kansas; died at his home in Eldorado, Kan., February 14, from heart disease, aged 65.

Henry Theodore Lewis, M.D. College of Physicians and Surgeons, Chicago, 1897; formerly a practitioner of Wisconsin, but for four years a resident of New Mexico; died at his home in Alameda, N. Mex., aged 42.

John Charles Bridgman, M.D. Rush Medical College, 1903; a Fellow of the American Medical Association; of Pocahontas, Ia.; died in the Iowa Methodist Hospital, Des Moines, February 12, aged 44.

William John Ketchum, M.D. University of Michigan, Ann Arbor, 1875; a member of the Michigan State Medical Society; died at his home in Dowagiac, Mich., February 21, from pneumonia, aged 64.

Dwight Reed, M.D. New York University, New York City, 1848; for sixty years a practitioner of Homesdale, Pa.; died at the home of his daughter in that place, February 19, from senile debility, aged 90.

Frank Fuller (license, New York), a practitioner and dentist since 1857; governor of Utah during the Civil war; died at his apartments in New York City, February 19, from senile debility, aged 87.

Thomas Biddle, Jr., M.D. University of Pennsylvania, Philadelphia, 1876; a widely known naturalist of Philadelphia; died at his home in that city, February 19, from pneumonia, aged 61.

Leslie Glover, M.D. Kansas City Hahnemann Medical College, Kansas City, Mo., 1911; died at his home in Williamsburg, Mo., February 2, from disease of the intestines, aged 34.

Cliff Lindsey, M.D. Rush Medical College, 1892; of Billings, Mont.; surgeon to St. Vincent's Hospital; died in Mercy Hospital, Prescott, Ariz., February 4, from nephritis, aged 48.

Paul E. Trees, M.D. Medical College of Indiana, Indianapolis, 1905; a member of the Indiana State Medical Association; died at his home in Maxwell, Ind., about February 22, aged 35.

John G. Nehrbas, M.D. Ensworth Medical College, St. Joseph, Mo., 1896; of Indianapolis; died in the Methodist Hospital in that city, February 23, after a surgical operation, aged 44.

Joseph Palmer Watts, M.D. Harvard Medical School, 1905; a member of the Massachusetts Medical Society; died at his home in Wakefield, Mass., February 17, aged 31.

Charles Abner Scribner, M.D. Kentucky University, Louisville, 1906; of Louisville; died suddenly at the home of his brother in Bloomington, Ind., February 20, aged 56.

Louis Abel Combe, M.D. St. Louis University, 1903; a Fellow of the American Medical Association; died suddenly in his office in Fremont, Iowa, February 12, aged 44.

Ralph R. Holson, M.D. Kentucky School of Medicine, Louisville, 1891; died at his home in Iola, Ill., about February 17, from the effects of carbolic-acid poisoning.

Loyal Bishop Griffin, M.D. Medical College of Indiana, Indianapolis, 1890; died at his home in Greenfield, Ind.; February 17, from cerebral hemorrhage, aged 56.

Alexander J. Peet, M.D. Albany (N. Y.) Medical College, 1877; formerly of Brooklyn; died at his winter home in Miami, Fla., Dec. 13, 1914, aged 58.

E. L. Hesterly, M.D. Atlanta (Ga.) Medical College, 1891; died at his home in Greenwood, Ark., February 14, from cerebral hemorrhage, aged 71.

Henry T. Pittman (license, Arkansas, 1903), of Hempwallace, Ark.; died in the Livingston Hospital, Hot Springs, Ark., February 10, aged 59.

Lefferson A. D. Allen, M.D. University of Pennsylvania, Philadelphia, 1867; died at his home in Woodstown, N. J., February 17, aged 75.

Thomas Clay Canine, M.D. University of Nebraska, Lincoln, 1886; of Lincoln, died at Excelsior Springs, Mo., February 17, aged 61.

John Joseph McFadden, M.D. Jefferson Medical College, 1888; died at his home in West Philadelphia, about February 12.

Emil M. Sidler, M.D. Milwaukee Medical College, 1892; died suddenly at his home in Cudahy, Wis., February 4, aged 51.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SANMETTO

Report of the Council on Pharmacy and Chemistry

The following report on Sanmetto (Od Chemical Company, New York) has been adopted by the Council on Pharmacy and Chemistry, which authorized its publication.

W. A. PUCKNER, Secretary.

Sanmetto is one of the oldest proprietaries on the market. Its advertisements have been familiar to the readers of medical journals for several decades past. It is a typical nostrum. It is secret although the promoters have published various "near-formulas." The following are some of the statements regarding composition:

"A Scientific Blending of *True* Santal and Saw Palmetto with Soothing Demulcents in a Pleasant Aromatic Vehicle."

As this did not disclose the identity of the demulcents or the quantity of the alleged active constituents, the "formula" was, of course, meaningless.

Again it is:

"A Scientific blending of *true* Santal and Saw Palmetto in a pleasant aromatic vehicle."

Here the reference to "soothing demulcents" is omitted. The information furnished physicians at the present time is:

"It is a blend of harmonizing drugs."

A letter from a physician requesting information as to the exact composition of Sanmetto recently elicited the following reply:

". . . Sanmetto is a blending of true santal and saw palmetto with soothing demulcents in a pleasant aromatic vehicle. The demulcents are introduced not only for the purpose of modifying the irritant properties of the santal, but to add distinctively to the soothing properties of the finished product upon the mucous membrane of the urinary tract, and are not mentioned in our published formula for the simple fact that if we gave them, then we would do the advertising and the substitute manufacturer would engage in the 'unfair competition' of putting on the market his concoction, claiming to be made exactly after our formula, without spending a cent for advertising, relying upon our propaganda work to sell his substitute, although not the same article as nor equivalent to Sanmetto, from the fact that he would be working in the dark as to the processes in the manufacture of our product. There is no mineral substance in Sanmetto, nor any other ingredient that is detrimental in any way whatsoever. . . .

"OD CHEM. CO., "M. Haman, Pres't."

THE VALUE OF SANTAL AND SAW PALMETTO

The foregoing warrants the assumption that the active ingredients of the mixture are sandalwood oil and saw palmetto.

There was a period when the internal treatment of gonorrhea had a marked vogue. Balsamic remedies received the approbation of the medical profession as the most specific of internal remedies for this disease. As a representative of this class, sandalwood oil was very highly esteemed and had great popularity. As in other similar instances, this popularity was commercialized and the drug became the basis of many secret or semisecret mixtures, including "specialties" of pharmaceutical houses.

Sabal or saw palmetto is an official drug which at one time was used in genito-urinary affections, but now is seldom used, presumably because it has been found practically worthless. It is not mentioned by most pharmacologists, and those who do mention it regard it as of doubtful value. It is included among the preparations recommended for deletion as given in the report of the Committee on the Pharmacopeia of the American Medical Association (THE JOURNAL, Sept. 4, 1909, p. 792).

Even granting that sandalwood oil and saw palmetto do have therapeutic value, no one would think of regarding

either or both of these preparations as of use except in inflammatory conditions of the genito-urinary tract, especially gonorrhea.

If one is to believe the advertisements, however, the combination of these drugs in Sanmetto is a wonderful medicine. One might even conclude that there are few conditions in which it cannot be given with profit. For instance:

"In Nervous Diseases, especially Neurasthenic cases with origin in some sexual or genito-urinary disorder, for its action as a vitalizing tonic and reconstructive, restoring nutrition to germ plasm, relieving pathological conditions and for soothing and sustaining the nerves controlling the parts."

Bear in mind in reading the foregoing statement and the following that we are concerned with two drugs whose effects are exerted on mucous membranes especially of the genito-urinary tract.

"In Gestation Cases, showing tendency to albumin and convulsions, for toning the pelvic organs, clearing up the urine and cleansing the urinary bladder and outlet. In the Lying-in-Room for relieving the affections of urethra and bladder, painful strangury of the urethra and painful micturition due to the pressure of fœtal head upon the neck of the bladder and upon the urethra during labor, and infection, either septic or gonorrheal."

"In Weakness of the Kidneys, causing loss in tone and general health and Impairment of Eyesight—for strengthening the kidneys and bladder and toning the nervous system; and also for aiding in the constitutional treatment of Gonorrheal Infection of the Eyes.

"In the treatment of the Prostate, Testes, Mammæ, Ovaries, and Urethra, Kidneys and Bladder, for its soothing, slightly antiseptic, aphrodisiac, toning and restoring action to the mucous membrane and glands. By its use the parts affected in many cases returning to their normal condition."

While the reference to its aphrodisiac action and to the restoration of parts to the normal may have little interest to physicians, it may be counted on to appeal to the sexual neurasthenic. In premature senility:

"Sanmetto . . . is unexcelled as a vitalizing tonic to the withered glands of the reproductive system, promoting their normal secretory activity."

These claims are not only absurd but also harmful; they tend to perpetuate a hypochondriacal state of mind in the class of patients appealed to—the sexual neurasthenic. There is, however, a more serious side; the tendency of certain other claims made for the preparation are vicious and dangerous as well as misleading. The advertising claims are likely to induce some physicians—those who accept advertising "literature" as dependable—to belittle the importance of serious diseases of the sexual organs and to be content with Sanmetto, which, even if it gave as good results as other balsamic remedies, would be, at best, only a halfway measure. Thus in an advertising pamphlet physicians are given this advice as to the treatment of gonorrhea.

"To provide the needed rest the patient should be instructed to simply keep the parts clean with warm water for the first week and let the discharge continue until you can control it by internal medication. I wish to emphasize the fact that there is no way that any acutely inflamed portion of the genito-urinary tract can get the rest required so completely as by administration of Sanmetto. . . . After the acute gonorrhea has begun to subside the Sanmetto should be aided by mild astringent injections."

If there is any well-established fact in medicine, it is that gonorrhea is a serious disease—serious alike to the sufferer and to the community—and one which needs careful attention from the very first. To claim, either directly or by implication, that it can be cured by such a mixture designed to act on the kidneys, bladder and nervous system is false and dangerous doctrine.

The physician who prescribes Sanmetto prescribes a secret medicine for conditions which he is presumably competent to treat with simple remedies of which he knows the origin and action and which he can vary to suit the needs of the individual.

Sanmetto is a secret nostrum the exploitation of which is an invitation to haphazard, uncritical therapy and a menace to public health.

[EDITORIAL COMMENT:—Next week in commenting on another of these "ethical proprietaries" we shall take occasion to refer to the "pseudochemical" company which supplies physicians with Sanmetto.]

TUBERCLECIDE—AN ADVERTISING DODGE

Public Health Reports, Feb. 12, 1915, calls attention to the shameless attempt by the promoters of the nostrum "Tuberclecide," an alleged cure for tuberculosis, to secure credit for their fraudulent preparation by representing that the government authorities were to test it. This effort and the character of Tuberclecide were exposed in THE JOURNAL and in our pamphlet on "Consumption Cure Fakes." It is said that "the advertising literature . . . appears to indicate that an investigation of the curative value of this compound has been or is being made by direction of the President." Inquiries are constantly being received by the U. S. Public Health Service regarding "Tuberclecide," prompted no doubt by the advertising matter referred to and perhaps by other means best known to the promoters. The report declares that no investigation of the preparation in question has been made or is contemplated, and that, in fact, such investigation was specifically declined. The Public Health authorities again warn the public that "there is no drug known, however rare or expensive it may be, that has any special curative action on this disease, and all remedies advertised as such are to be avoided."

Correspondence

A Treatment for Morphin Addiction

To the Editor:—The Chicago House of Correction and the Emergency Hospitals have, during the past fifteen years, been called on to treat over 3,000 cases of narcotic drug addiction, principally morphinism. The large number of cases has given an opportunity for developing a treatment which we have found worth while. Many physicians have requested us to publish our formula, and, with the introduction of the Harrison law, the largely increased demand for such a treatment has caused us to describe the treatment. This must be regarded as a preliminary report.

When patients are received in the hospital they are given a preparatory dose of saline cathartic. The basis of the medical treatment is the following:

Scopolamin hydrobromid	gr. 1/100
Pilocarpin hydrobromate	gr. 1/12
Ethyl-morphin hydrochlorid—(dionin)	gr. ss
Fluid extract cascara sagrada	♏ xv
Alcohol	♏ xxxv
Water qs. ad	℥ i

The dose is varied according to the extent of the addiction. Patients vary from 1 or 2 grains to as many as 60 to 90 grains a day of morphin. When more than 10 grains of morphin per day are being taken, 60 minims of the above mixture is given every three hours day and night for six days. On the seventh day the dosage is reduced to 30 minims, the eighth 15 minims, and on the ninth 15 minims three times a day instead of every three hours day and night. On the tenth day the mixture is discontinued and strychnin nitrate, one-thirtieth of a grain, three times a day, is used. On the eleventh day strychnin nitrate, one-sixtieth of a grain, is given, and this is continued for a week. During the first five days only light diet is given, but patients are encouraged to take liquids freely.

If a patient is using less than 10 grains of morphin a day, the dose should be 30 minims of the mixture to begin with. If he is using less than 5 grains, 15 minims is used as a starting dose. During the first three days the patients suffer from insomnia, and in about 10 per cent. of the cases vomiting; this is to be expected. If the pulse goes below 40 or over 120, the mixture is stopped for a single dose. If there is collapse, one-half grain of ethyl morphin hydrochlorid or one-fourth grain morphin is given hypodermically. In about 4 per cent. of the cases a scopolamin delirium may develop. In such instances the mixture should be given without scopolamin for two doses, and then continue with scopolamin in one two-hundredth-grain doses.

During the treatment no other drugs should be used. After the fifth day the patients will have no further desire for morphin. Up to this time they care very little for food, but after the fifth day they develop a ravenous appetite and will gain weight rapidly. Extremely emaciated patients will gain a pound a day for the first thirty days.

As stated, the results of the treatment have been, to our mind, quite efficient, and have been found on comparison to secure more lasting results than the Lambert-Towns atropin treatment. The patient should be directly under the physician's care, but after eleven days, the strychnin treatment of seven days may be safely entrusted to the patient.

The final results are, of course, dependent on the cause of the addiction. If, since the beginning of the habit, the cause has been removed, the patients are permanently cured and do not return to the habit. Where the cause persists, whether it be functional neurosis, a degenerate mentality or criminality, the patient occasionally returns to be treated anew. The treatment of the cause should be borne in mind at the time any corrective treatment is undertaken.

CHARLES E. SCELETH, M.D., Chicago.

[COMMENT.—Dr. Sceleth is medical superintendent of the House of Correction and Sceleth Emergency Hospitals, Chicago. In these two institutions, which are practically one, all police cases in the city of Chicago are handled, and cases of drug addiction are referred practically and invariably by other hospitals to them. Ethyl-morphin hydrochlorid is the hydrochlorid of the ethyl ester of morphin. The product was first introduced by Merck & Co. under the trade name "Dionin." See New and Nonofficial Remedies, 1914, p. 209.]

Pyorrhea Dentalis and Alveolaris

To the Editor:—In their article on this subject (THE JOURNAL, Feb. 13, 1915, p. 553), Bass and Johns state positively what they mean, since they define what in their opinion takes place; for they say: "Pyorrhea dentalis and alveolaris is one of the most prevalent diseases of man. In our studies we have found it present to some extent in more than 95 per cent. of all adults examined. Something of its importance may be suggested by the fact that more than half of all the permanent teeth lost are lost from this disease. Each tooth lost represents a suppurative process in the mouth of at least a few or usually many years." One would naturally inquire, Were the patients selected because of pus about the teeth, were they taken from dispensary clinics or were they observed in the office of a reputable practitioner of dentistry? Most adults in dispensaries, poorhouses, insane asylums, etc., have uncleanly mouths and teeth, with calcic deposits and pus infection. This is not the case with patients who go to the dentists from year to year and range from 5 years and up.

My own researches have shown that every person, after the first teeth have erupted, has an inflammation of the alveolar process to a greater or less extent throughout life; that about 10 per cent. of persons have pus, while 90 per cent. have inflammation and absorption of the bone without pus infection. It would be difficult for the authors to demonstrate that "each tooth lost represents a suppurative process in the mouth." The term "pyorrhea alveolaris" they use offhand in a general way.

They say, "The specific cause of pyorrhea dentalis and alveolaris is endamebas." How do they know that the disease is due to the endamebas? The mere fact of finding them in the pus about the teeth does not prove that they cause the disease or even the pus infection. They are also found in other parts of the mouth and throat. It has been stated by Miller and others that there are at least 150 varieties of germs in the mouth and about the teeth. Why select the least harmful one according to Professor Chiavans (*Dental Cosmos*, August, 1914, p. 948), and give it all the credit for pyorrhea and allow the 149 remaining most violent bacteria to be innocent bystanders? This is a paradox. Why did they not conduct their researches according to the law of Koch, and inject the germs into the mouths of animals, produce the disease and then cure it by injecting emetin? The authors assert that "the constant presence of endamebas in the presence of the disease, and their absence in the absence of the disease, coupled with their situation in the lesions, and finally the coincident rapid recovery of the disease with the disappearance of the endamebas following treatment with a specific endamebacide, serve to establish the parasite as the specific cause beyond reasonable doubt." This reasoning can hardly be considered convincing by our modern methods of research.

No one up to this date has demonstrated that the inflammation and absorption of the alveolar process is a germ disease. On the other hand, my own researches made on man, monkeys, and many other animals show that the disease is due to irritants, both local and constitutional, and that pus infection is a secondary consideration. Every dentist has produced the disease by faulty manipulation, producing irritation and local inflammation which has progressed until exfoliation of the tooth or teeth has taken place without pus infection. The same is true of constitutional irritants and diseases such as asthma, kidney lesions, auto-intoxication, drug and metal poisoning, and by lowering the vitality of the patient and tissues.

The authors again say: "The infection usually begins around the back teeth and exists for months or years before the patient suspects its nature. The interdental soft tissue is most likely to be injured and to be the seat of the closed ulcers favorable for infection; therefore the disease begins there first in most instances." The experience of every dentist will bear me out by the statement that the "back teeth" are no more likely to be involved than any other teeth in the jaw. The alveolar process about the anterior teeth is thinner, and it is more liable to receive a local injury and become inflamed than that about the posterior teeth. When the cause is due to constitutional irritation, the process about a tooth which has to a certain extent lost its normal function is the one first involved, as a tooth with too much pressure, or one that has no antagonism, or one whose pulp has been destroyed, etc.

It is true that the inflammation may proceed for years or until the tooth becomes loose without the patient being aware of the fact. The first reliable symptom of the inflammation is bleeding of the gums. Under the head of the treatment, emetin is used because it is "such a perfect endamebacide." What becomes of the 149 other germs about the teeth, many of which are of the most pathogenic nature? Why not use iodin and destroy the 150 varieties at one treatment, if it comes in contact with all the germs? The fact is that pus is nearly if not always associated with the calcic and other deposits on the necks and roots of the teeth. Remove this and the pus is destroyed without a germicide. Indeed, when the deposit is deep down on the root of the tooth and an attempt has been made to remove it, if pus is still present it is an indication that the deposits have not all been removed. If the inflammation and absorption have become well established, the disease (not pyorrhea) is rarely if ever cured in the sense that other diseases of the body are cured. It requires constant attention every few weeks. Systemic disease due to focal infection of the mouth is not considered in this paper. To enter into details of my own researches on this subject would require too much space.

EUGENE S. TALBOT, M.D., D.D.S., Chicago.

The Taboo on Adaptation.—It would seem that some persons find the very word adaptation of too questionable a reputation for mention in polite scientific society. Allow me to illustrate by a leaf taken from my own notebook. I once ventured to publish a small experimental work on the movements of the fresh-water Hydra with respect to light. What was my surprise to receive a reproof from a friendly critic, because I had not been content with an objective description of the movements but had also been so indiscreet as to emphasize their evident utility to the animal. I was no doubt too young then—I fear I am too old now—to comprehend in what respect I had sinned against the light.—Edmund B. Wilson, *Science*.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TECHNIC OF VITAL STAINING OF BLOOD

To the Editor:—Please let me know the technic of the so-called "vital staining" for blood. How would you differentiate the different types of cells in making a differential count? What is the composition of the stains used and where can I secure them? I am informed that this method of staining is particularly useful in showing up the blood platelets, but I cannot find any literature on the subject.

R. PENN SMITH, M.D., Pittsburgh.

ANSWER.—By "vital staining" of blood is meant the staining of blood cells while absolutely fresh and without fixation by either chemical or physical means. For this purpose the stains are dissolved in perfectly indifferent mediums such as physiologic salt solution, Ringer-Locke solution and the like, or even directly in the blood itself. The blood is mixed with the stain and examined immediately, preferably on a warm stage. The staining solution may be placed on the slide, a drop of blood put with it and covered with cover glass, the margins being sealed with paraffin or some other means to prevent evaporation. Or a granule of the solid stain may be put in the drop of blood, which is then treated as stated. The blood may also be mixed with the stain as it flows out of the puncture, the required quantity being then transferred immediately to the slide. In typical vital staining the nucleus is not stained, only certain granules and fibers in the cytoplasm taking the stain. As the cell begins to die, "postvital" staining of whole or parts of the cell may occur. In making a cell count, the lymphocytes are readily distinguished by their size and the shape of the nuclei; the neutrophil leukocytes are distinguished by their fine granulations, and the eosinophils by their coarser granulations, even when the granules are not stained. Among the stains used in vital staining are methyl violet, neutral red fuchsin, toluidin blue, thionin, Nile blue, etc. Nile blue stains the blood plates nicely. Speaking generally, 0.1 c.c. of any one of these stains to about 250 c.c. of whatever indifferent fluid is used will make a serviceable solution for staining. Pappenheim recommends the following modification of Ringer-Locke solution: sodium chlorid, 6.0 c.c.; calcium chlorid, 0.2, potassium chlorid, 0.4; sodium bicarbonate, 0.02; grape sugar, 1.0, and distilled water, 1,000. Regret is sometimes expressed that hematologists do not use vital staining methods more frequently in the examination of blood, because thereby much might be learned in regard to changes incident to cell activity. Recently Cowdry has studied the mitochondria or small rod-shaped granules in the cytoplasm of human leukocytes after vital staining with janus green, obtaining very interesting results. It is essential that the right dye be obtained (diethylsafranin-azodimethylanilin, New York Agency of Farbwerke-Höchst Company). It is used in a concentration of about 1:10,000 in 0.85 per cent. sodium chlorid solution.

THE PULMOTOR

To the Editor:—I am informed that the Bureau of Mines has on the advice of physicians discontinued the use of the pulmotor and has forbidden its employees to use it. Does this represent the present attitude of the best experience in the medical profession?

H. B. WARD, Urbana, Ill.

ANSWER.—The Commission on Resuscitation from Electric Shock and also the Committee on Resuscitation from Mine Gases, both of which were appointed through cooperation with the American Medical Association, made a careful investigation of the action of the pulmotor. This investigation involved a study of such clinical reports as could be obtained of the effects of use of the instrument, and also a study of the working of the instrument on a variety of animals. The results of these examinations showed, first, that the automatic action of the pulmotor is defective in that any obstacle in the air passages can increase the pressure, automatically cut off the flow of air and turn the instrument to withdrawing air. Thus frequently no efficient inspirations may be performed. In the second place, the instrument brings about expiration in a wholly unphysiologic manner by suction. This suction is liable to cause the smaller divisions of the air passages to collapse and stick together, and may produce hemorrhages. These harmful effects are particularly liable to occur if the instrument is used for any considerable period. Indeed, with use of the pulmotor it is impossible to keep animals alive for any great length of time without taking off the instrument and giving artificial respiration by a method which does not involve suction.

The commission was unable to find any careful analysis of the action of the pulmotor in clinical cases, and the ease with which it often fails to cause inflation of the lungs, together with the bad effects which occur if its sucking action in expiration is permitted to continue for a long period, led to the conclusion that the instrument was liable to be inefficient and dangerously deceptive. There seems to be no substantial foundation for the high credit given the machine in popular opinion—an opinion which has been largely based on the notoriety arising from newspaper reports. A full account of the findings can be had by writing for the report of the Committee on Resuscitation from Mine Gases, Technical Paper No. 77, of the Bureau of Mines, Washington, D. C.

STREPTOCOCCUS VACCINE IN SCARLET FEVER

To the Editor:—Are scarlatina bacterins and serobacterins being used to any extent as a means of producing immunity to scarlatina? Can you give any statistics or other proofs that they do or do not produce immunity?

LYNN M. BARNES, M.D., Decatur, Ill.

ANSWER.—By the vaccines mentioned is meant streptococcus vaccine, the streptococci being derived from cases of scarlet fever. There are no indications so far as may be learned from current literature that such vaccines are being used to any extent in order to prevent scarlet fever. This form of preventive inoculation was introduced by Gabritschewsky in 1905 and was used quite extensively in Russia, the statistics appearing to speak strongly in favor of the value of the method. R. M. Smith (*Boston Med. and Surg. Jour.*, 1910, clxii, 242) reviewed all the articles on the subject up to 1910, and he concludes that Gabritschewsky's vaccines appear to have some influence in controlling epidemics of scarlet fever and that they should be tried in this country. Biver (*Jour. Am. Pub. Health Assn.*, 1911, i, 643) published some preliminary notes on streptococcus vaccine against scarlet fever, but the final report has not appeared. Watters (THE JOURNAL, Feb. 24, 1912, p. 546) used vaccines made from cultures of streptococci from the throats of patients with scarlet fever in twenty-one nurses who had not had scarlet fever previously, the injections being made before the nurses went on duty in scarlet fever wards. One of these nurses contracted scarlet fever, while of fourteen other nurses who did not receive any injection, five contracted scarlet fever. These figures, though small, are suggestive.

It has been suggested that the rather frequent development of symptoms like those of scarlet fever after the injections by Russian physicians of Gabritschewsky's vaccine might be due to the presence of the real cause of the disease in the vaccines they used.

RECENT LITERATURE ON PNEUMOTHORAX

To the Editor:—Please give references to articles on artificial pneumothorax published during 1914.

WARD L. FISHER, M.D., Salem, Ore.

ANSWER.—The following is a list of such articles:

Mace, L. S.: Apparatus for Artificial Pneumothorax, THE JOURNAL, Jan. 3, 1914, p. 40.

Effect of Pneumothorax on Blood, Current Comment, THE JOURNAL, Jan. 10, 1914, p. 134.

Angelini, A.: Beneficial Immediate Results of Therapeutic Pneumothorax, *Riv. Osp.*, Nov. 15, 1913; abstr., THE JOURNAL, Jan. 10, 1914, p. 174.

Rochelt, E.: Permanent Therapeutic Pneumothorax, *Wien. klin. Wchnschr.*, Nov. 20, 1913; abstr., THE JOURNAL, Jan. 10, 1914, p. 173.

Bruns, O.: Beneficial Influence of Impeded Circulation with Therapeutic Compression of One Lung, *Beitr. z. Klin. d. Tuberk.*, xxix, No. 2.

Matson, R. C.: Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax, *Northwest Med.*, January, 1914; abstr., THE JOURNAL, Feb. 14, 1914, p. 573.

Gray, E. A.: Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis, abstr., THE JOURNAL, Feb. 14, 1914, p. 564.

Montgomery, C. M., and Speese, J.: Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax, *Pennsylvania Med. Jour.*, February, 1914; abstr., THE JOURNAL, March 14, 1914, p. 884.

Pomeroy, J. L.: New Sign in Pneumothorax, Particularly Artificial Pneumothorax, THE JOURNAL, March 7, 1914, p. 774.

Vrooman, C. H., and Wittich, F. W.: Apparatus for Producing Artificial Pneumothorax, THE JOURNAL, March 21, 1914, p. 929.

Real, C.: Induced Pneumothorax in Pregnant Women, *Beitr. z. Klin. d. Tuberk.*, 1914, XXIX, No. 3; abstr., THE JOURNAL, March 21, 1914, p. 973.

Schaie, M.: Artificial Pneumothorax, THE JOURNAL, March 21, 1914, p. 900.

Knopf, S. A.: Apparatus for Production of Therapeutic Pneumothorax, *Am. Jour. Med. Sc.*, March, 1914; abstr., THE JOURNAL, April 4, 1914, p. 1118.

Carpi, U.: Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis, *Policlinico*, Rome, March 22, 1914; abstr., THE JOURNAL, May 2, 1914, p. 1444.

Boynton, C. N.: Preparation of Nitrogen for Artificial Pneumothorax, *Arizona Med. Jour.*, April, 1914; abstr., THE JOURNAL, May 9, 1914, p. 1506.

Davies, H. M.: Therapeutic Value of Gases Introduced into Pleural Cavity, *Brit. Med. Jour.*, April 25, 1914; abstr., THE JOURNAL, May 23, 1914, p. 1694.

Lapeyre, N.: Present Status of Operative Treatment of Pulmonary Tuberculosis, *Arch. gén. de Chir.*, April, 1914; abstr., THE JOURNAL, June 6, 1914, p. 1848.

Voorsanger, W. C.: Palliative Effect of Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis, THE JOURNAL, May 9, 1914, p. 1450.

Von Adelung, E.: Induced Pneumothorax, THE JOURNAL, June 20, 1914, p. 1944.

Dunham, K.: New Applications of Artificial Pneumothorax as Therapeutic Measure, *Am. Jour. Roentgenol.*, July, 1914.

Frank, O., and Jager, N.: Dog's Lungs After Seven Months of Induced Pneumothorax, *Wien. klin. Wchnschr.*, June 18, 1914; abstr., THE JOURNAL, July 25, 1914, p. 363.

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HAINES' TEST FOR SUGAR

To the Editor:—While using Haines' test for sugar in the urine, I find that in a considerable number of cases in which there is apparently no reaction, if the test tube is left for an hour in a place where the temperature is near the freezing point, the entire contents will be heavily clouded with a whitish or whitish-yellow-tinged precipitate. Does this indicate the presence of sugar?

The Haines test solution is as follows:

Pure sulphate of copper	30	grains
Pure water	½	fluidounce
Make a perfect solution and add:		
Pure glycerin	½	fluidounce
Mix thoroughly and add:		
Liquor potassae	5	fluidounces

Directions for use: Take about 1 fluidram of the test solution and gently boil it, when no change should take place; now add 6 or 8 drops of the suspected urine and again bring to a boil. If sugar is present, an abundant yellow or yellowish-red precipitate is thrown down. If no such precipitate appears, sugar is absent.

C. R. PICKERING, B.S., M.D., Muscoda, Wis.

ANSWER.—The precipitate may consist of copper urate together with a small amount of cuprous oxid produced by the reducing action of the uric acid. Such a precipitate should not be taken as indicating sugar.

WHITE SPOTS ON THE FINGER NAILS—LEUKONYCHIA

To the Editor:—A patient came to me with the complaint that her finger nails are greatly disfigured by the presence of white spots. The nails seem perfectly healthy, not brittle, not atrophied, not inflamed. They are thickly studded with white spots. The spots are not on the nails nor under them, but a part of them. I can find no literature on the subject, and shall be very thankful to you if you can offer any suggestion as to literature or as to treatment.

A. M. MENDENHALL, M.D., Jamestown, R. I.

ANSWER.—This condition is described in text-books on the skin under the title "leukonychia." The discolorations occur in the familiar spots and occasionally in lines, very rarely as complete whitening of the nail. The etiology is not certainly known. Many of the spots seem to be due to traumatism, such as follows manicuring. They occur much more frequently during adolescence and in women, and usually in persons of nervous type. The white spots are probably due to the presence of gas (air) in the substance of the nail. There is no treatment and no means of prevention, except in so far as the spots are due to traumatism.

BEDSIDE RECORDS

To the Editor:—Kindly send me the addresses of a number of firms who publish case records or sheets for use in general practice.

I do not wish a bedside record, but one on which there is space for family history, personal history, result of examination, blood findings, urinalysis, etc.

W. V. GAGE, M.D., Worland, Wyo.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 6-7. Sec., Dr. John Wix Thomas, Phoenix.

CALIFORNIA: San Francisco, April 13-16. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

COLORADO: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 13-15. Sec., Dr. George C. Ober, 125 B St., S. E.

IDAHO: Lewiston, April 6. Sec., Dr. John F. Schmershall, Jerome.

MINNESOTA: Minneapolis, April 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

MISSOURI: St. Louis, March 22-24. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

MONTANA: Helena, April 5. Sec., Dr. William C. Riddell, Helena.

RHODE ISLAND: Providence, April 1-2. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

UTAH: Salt Lake City, April 5-6. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

WEST VIRGINIA: Charleston, April 13. Sec., Dr. S. L. Jepson, 81 12th St., Wheeling.

Michigan October Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 13-15, 1914. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75, with not less than 50 per cent. in each subject. The total number of candidates examined was 13, of whom 12 passed and 1 drugless practitioner failed. Thirty candidates were licensed through reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
University of Illinois	(1914)	88.9
University of Michigan Dept. of Medicine and Surgery	(1913)	83.6
University of Michigan Homeopathic College	(1914)	85.6
Syracuse University	(1892) 75; (1913)	85.6
Vanderbilt University	(1910)	82.5
Milwaukee Medical College	(1905)	83.5
University of Toronto	(1905)	88
Western University, London, Ont.	(1912)	82.8
University of Krakow	(1895)	78.2
Royal Hungarian University, Budapest	(1912)	82.5
Royal University of Palermo	(1889)	90.5

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1913)	Illinois
Chicago Homeopathic Medical College	(1885)	Indiana
Northwestern University	(1914)	Illinois
Rush Medical College	(1897)	Indiana
University of Illinois	(1911) (1913) (1914)	Illinois
Drake University	(1912)	Iowa
Baltimore Medical College	(1911)	Maryland
Johns Hopkins University	(1912)	Ohio
University of Maryland	(1907)	W. Virginia
Detroit College of Medicine	(1886)	Ohio
St. Louis University	(1913,3)	Missouri
Cornell University	(1905)	New York
Long Island College Hospital	(1898) (1909)	New York
University and Bellevue Hospital Medical College	(1903)	New York
Eclectic Medical College, Cincinnati	(1906)	Arkansas
Medical College of Ohio	(1890)	Ohio
University of Oklahoma	(1913)	Oklahoma
Medico-Chirurgical College of Philadelphia	(1913)	Penna.
Vanderbilt University	(1889) Arkansas; (1913)	Tennessee
University of Virginia	(1909)	Hawaii
Marquette University	(1913)	Wisconsin
Milwaukee Medical College	(1907) (1909)	Wisconsin
Queen's University	(1912)	New York

Missouri December Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the oral, practical and written examination held at St. Louis, Dec. 14-16, 1914. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 23, of whom 15 passed and 8 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
University of Arkansas	(1912)	75
Rush Medical College	(1914)	91

Hospital College of Medicine, Louisville	(1892)	75
Kentucky University	(1901)	76
American Medical College	(1914)	79
Ensworth Medical College	(1913)	75
St. Louis College of Phys. and Surgs.	(1912) 78; (1914)	75
St. Louis University	(1914)	83
Woman's Medical College of Pa.	(1891)	75
University of West Tennessee	(1914)	75
Vanderbilt University	(1882)	75
University of Texas	(1914)	83, 84, 91

FAILED

American Medical College	(1914)	1
St. Louis College of Phys. and Surgs.	(1908) (1909) (1910) (1914, 2)	(1913) 6
University of Tennessee	(1914)	1

New Hampshire December Report

Mr. H. C. Morrison, regent of the New Hampshire State Board of Medical Examiners, reports the practical and written examination held at Concord, Dec. 29-30, 1914. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 11, of whom 8 passed and 3 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Tufts College Med. School.	(1904) 84; (1913) 79, 82;	(1914)	78
Dartmouth Medical School	(1911) 78;	(1914)	87
Long Island College Hospital		(1912)	76
University of Vermont		(1912)	81

FAILED

Harvard University	(1885)	62
University of Vermont	(1914)	68
National University, Athens	(1905)	47

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Columbian College		(1899)	W. Virginia
Georgia College of Eclectic Med. and Surg.		(1912)	Georgia
Maryland Medical College		(1912)	Georgia
Tufts College Medical School		(1905)	New Jersey

South Dakota January Report

Dr. Park B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the practical and written examination held at Pierre, Jan. 12-13, 1915. The total number of subjects examined in was 13; total number of questions asked, 115; percentage required to pass, 75. The total number of candidates examined was 14, all of whom passed. Three candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
American Coll. of Med. and Surg., Chicago		(1906)	84
Bennett Medical College	(1912) 82.6;	(1913)	80.3
Northwestern University		(1913)	87.9, 88.5
Rush Medical College		(1914)	88.6
University of Illinois		(1914)	83.1
Drake University		(1913)	84
St. Louis University		(1912)	86.2, 86.8
John A. Creighton Med. Coll.	(1911) 80.2; (1912) 86.9;	(1914)	85
Albany Medical College		(1908)	82

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1913) Minnesota;	(1912)	N. Dakota
University of Minnesota		(1903)	Minnesota

Vermont January Report

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the written examination held at Montpelier, Jan. 11-13, 1915. The total number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 9, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Boston		(1909)	76.6
University of Vermont	(1912) 82.4; (1913) 80;	(1914)	80.1, 83.3, 84.
Queens University		(1907)	80; (1913) 80
Royal University of Rome		(1910)	76.5

Book Notices

DISEASES OF THE NOSE, THROAT AND EAR, MEDICAL AND SURGICAL. By William Lincoln Ballenger, M.D., Professor of Otology, Rhinology and Laryngology, College of Physicians and Surgeons, Department of Medicine, University of Illinois. Fourth Edition. Cloth. Price, $5.50 net. Pp. 1080, with 536 illustrations. Philadelphia: Lea & Febiger, 1914.

The opportunity of the reissue of this book has been used to revise the entire work and bring it up to date. As in past editions, the practical side is made a prominent feature; it will be found that the paragraphs on treatment are carefully arranged and well up to date, and recent operative measures have been given adequate recognition. Operative methods have always been a feature of Dr. Ballenger's book. The care with which each step in the operation is outlined and often illustrated will be of special interest to those who desire to perfect their operative methods. The author by his contributions in various departments of this subject is well qualified to speak authoritatively. The preface tells us that "the distinguishing feature of this edition will be found in its chapters on the labyrinth." The importance of this subject has weighed down the author with due responsibility, for we are told that the new matter on the labyrinth amounts to over 100 pages. We turn, therefore, with expectancy to these chapters. We have found many of these pages the least satisfactory in this edition. The author has not clearly distinguished between facts and hypotheses; there are many speculations which might well have been left out or treated with brevity. The subject of the physiology of the labyrinth is no doubt intricate, but the author could have made it less so had he clearly stated the primary function of the labyrinth and then pointed out how the reflex phenomena are related to this primary function. There are several colored diagrammatic plates illustrating what one might term popular ideas on the mechanism of nystagmus. Many of these ideas are pure speculation and are open to obvious objections. For instance, one is inclined to ask how it happens that a "cortical correction impulse arises in the right cortical center and acting through the third and sixth oculomotor nuclei of the right side produces a quick conjugate movement of both eyes to the right" (p. 865). One recalls that the physiologist insists that stimulation of the cerebral cortex turns the eyes to the opposite side. Again, one will ask where we have any support for Diagram xxvi and this statement (p. 914) to explain complete vestibular compensation: "The two halves of the cristae of the healthy labyrinth become equal in tonus, whereas normally the tonus is 2 to 1. Doubtless the stronger half atrophies and the weaker half hypertrophies until the two become equal." It is difficult to understand why it was necessary on page 862 to introduce diaschisis without any explanation of what is meant by it. Diaschisis, which is Monakow's idea of what the surgeons term "shock," is still hypothetic, and it is doubtful if it will help us to understand labyrinthine function. It is stated (p. 868) that experiments on animals show that when both labyrinths are destroyed simultaneously, there occur neither nystagmus nor reaction movements (by reaction movements the author refers to vertigo, nausea and ataxia). While true that no nystagmus occurs, it is not true that there are no reaction movements. From these pages one turns with pleasure to the chapter dealing with operations on the labyrinth, which is well written and contains good illustrations of the various steps. On page 872 it is stated that there is spontaneous cerebellar nystagmus "when there is disease of that portion of the cerebellum in which the vestibular centrums (Deiter's and Becterew's and the angular nuclei) and the vestibulo-cerebellar tracts are located." This is evidently an oversight, as it is unnecessary to point out that neither Deiter's nor Becterew's nucleus lies in the cerebellum. The chapter on the functional tests of hearing is well worth reading. The method of using these tests and the deductions are clearly stated without any unnecessary speculations in regard to controvertible points. One of the best recommendations of this book is the abun-

dance of the illustrations, and as a rule the care which has been given to make them satisfactory. It is this obvious care that irritates one to see such a figure as 424 (p. 803), which is unsatisfactory and misleading. But on the whole the author and the publisher alike deserve credit for the way the illustrations have been done. The reader will find in the text a fund of information which in the matter of technic leaves little to be desired.

NEW AND NONOFFICIAL REMEDIES. Containing Descriptions of the Articles Which Have Been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association Prior to Jan. 1, 1915. Price, cloth, $1; paper, 50 cents. Pp. 426. Chicago: American Medical Association, 1915.

The appearance of the 1915 edition of New and Nonofficial Remedies marks the termination of the first decade of the work of the Council on Pharmacy and Chemistry of the American Medical Association. A reference to the work will show that it includes every proprietary remedy, introduced during the last twenty years, that may be regarded in any way as an advance in therapeutics. We need to mention only the substitutes for salicylic acid, for cocain, the derivatives of morphin, the colloidal metals, the principal agents of bacterial therapy, vaccines, salvarsan—all of which represent more or less advance in drug therapy.

In the present volume the grouping has been carried out more systematically than in previous volumes, and explanatory articles introduce each group. These articles review the chemical relations of the members of a group, discuss the pharmacologic action, and review the evidences of therapeutic value. Attention may be directed especially to the articles on serums and vaccines, which contain a conservative estimate of these remedies only to be arrived at by extensive reading and practical experience.

While the introduction contains the warning that the admission of a drug to the book does not necessarily constitute a recommendation, at the same time it is evident that the Council has grown more critical regarding therapeutic claims until it may be assumed that the inclusion of a preparation in the book means that the claims made by its manufacturers are supported by evidence at least worthy of examination. In some instances a statement is made to the effect that while the preparations have been accepted, the Council is not prepared to endorse the claims made for them, but has admitted them because it was not yet prepared to contradict the claims.

Of the detailed contents of the book little need be said. It presents much valuable information concerning proprietary and the newer drugs, both as to their chemical properties and their therapeutic applications. It well deserves to be a constant companion to the physician in his reading and a guide to the use of the newer drugs, proprietary and otherwise. There is no other book to which the physician can refer for unbiased information regarding proprietary medicines. This is a fact that every physician should know. He should also know that when he prescribes a proprietary or a drug that is not found in this book or in the Pharmacopeia, he is venturing on uncertain ground and prescribing drugs for which there is no official, or any other, standard.

SÄUGLINGSERNÄHRUNG UND SÄUGLINGSSTOFFWECHSEL. Ein Grundriss für den Praktischen Arzt. Von Leo Langstein, Direktor des Kaiserin Auguste Victoria-Hauses zur Bekämpfung der Säuglingssterblichkeit im Deutschen Reiche, und Ludwig F. Meyer, 1. Assistent am Kinderasyl und Waisenhaus der Stadt Berlin. Third Edition. Cloth. Price, 11 marks. Pp. 408 with 46 illustrations. Wiesbaden: J. F. Bergmann, 1914.

This book, in its improved and somewhat enlarged second edition, can be highly recommended, not only to pediatricians but also to those who wish a more comprehensive idea of the work that has been done in the last years on the nutritional diseases of infancy. It includes the physiology as well as the pathology of the infant's nutrition. The chapters on infection and nutrition, vomiting, hunger and underfeeding are especially valuable in giving one their relationship to the subject of nutrition.

Miscellany

Mortality Statistics for 1913

The report of the Census Bureau on mortality in 1913 shows that the total number of deaths in the registration area was 890,848, a death rate of 14.1 per thousand of estimated population. This represents a slight increase over 1912, when the rate was 13.9, the lowest shown by the bureau. There has been a marked though not quite continuous decline in the death rate since 1880, when it was 19.8 per thousand, based on the deaths among 17 per cent. of the population. The estimates in this report are based on deaths among 65.1 per cent. of the population, the registration area comprising twenty-four states and about two-thirds of the population. The figures of foreign countries for 1913 are not available, but a comparison with 1912 shows that the countries having lower death rates were Norway, 13.4 per thousand of population; England and Wales, 13.3; Ontario, 12.4; Holland, 12.3; Australia, 11.2, and New Zealand, 8.9. The death rates in the various states are also given: Washington had the lowest mortality rate, 8.5, and New Hampshire the highest, 17.1. The chief reason for this difference is believed to be a difference in favor of Washington in the average of the population. In sixty-seven cities in which the colored population was in 1910 about 10 per cent. of the population, the deaths among the whites were 15.3 per thousand, while among the colored, which include Indians, Chinese and Japanese, the rate was 26.8. Another interesting point is that the average age at death for both sexes was 39.8; for males alone, 39.2, and for females alone, 40.6. This has no reference to the expectation of life as given in actuarial tables. Nearly 18 per cent. of all deaths were of infants under 1 year, and more than 25 per cent. were among children under 5 years. After 5 years it is the other extreme of life that has the highest death rate—between the ages of 70 and 74 for both sexes—a little higher among women alone. For men alone the period of highest mortality is between 65 and 69, when it constitutes 6.4 per cent. of the total deaths for males. The death rate for tuberculosis declined from 149.5 per hundred thousand in 1912 to 147.6 in 1913. It is said the rate from this cause shows an irregular though continuous decline since 1904. Likewise, the rates for typhoid fever, scarlet fever, diphtheria, croup, pneumonia (all forms), diarrhea and enteritis have undergone a general decline since 1900, though the rate was a little greater in 1913 than in 1912. It is significant, however, that there has been an almost continuous increase from year to year since 1900 in the death rates from cancer, organic heart diseases and endocarditis, and various forms of nephritis. In the twelve most important causes of death the greatest increase was that for cancer, which rose from 63 per 100,000 of population in 1900 to 78.9 in 1913. In only two years was there a decrease from the preceding year. According to this report, the horse and horse-drawn vehicles still cause more deaths than the automobile, the figure for the former being 2,921 and for the latter 2,488, a clear margin in favor of the automobile.

Result of Federal Investigation of Public Health Administration in the State

The report of the recent investigation of the health laws and public health administration of the state (Clark, Taliaferro: *Pub. Health Rep.*, Jan. 22, 1915), made by the U. S. Public Health Service in response to a request of the governor and health authorities of West Virginia, includes the following conclusions and recommendation: The State Board of Health lacks adequate authority and funds for the perfection of public health and has too large a membership for effective work. The discretionary powers of the board relating to public water supplies, stream pollution, excreted disposal, sanitation of public buildings, public institutions and labor camps need to be amplified. The law requiring reports of contagious and infectious diseases is inadequate and has not been enforced. The present system of registration of marriages, births and deaths is

ineffective. A state department of health with a commissioner of health as its administrative head should be created to exercise the functions of the present State Board of Health. The commissioner of health should be given full authority to administer the health laws and regulations and to appoint and remove minor employees and should be given an advisory counsel of not more than six members, one to be a lawyer and one a civil or sanitary engineer. The State Department of Health should be given authority to examine food, drink and drugs offered for sale for public consumption and be made responsible for the food and drug laws of the state and should be authorized to regulate character and location of drainage, water supply, sewers, etc., in cities, towns and labor camps and to inspect and regulate sanitary conditions in all industrial establishments. A law for the registration of marriages, births and deaths should be adopted, fulfilling the requirements of the director of the United States Census.

Legislative Hearing on Foot-and-Mouth Disease

The governor and the Illinois general assembly heard a discussion recently by a number of invited animal husbandry and veterinary experts and editors of farmers' and drovers' newspapers who were called to advise them regarding foot-and-mouth disease in Illinois and methods for its eradication. The proceedings of the hearing are printed as a public document and circulated by the state. The pamphlet contains a conservative and dispassionate discussion of all the questions which the epidemic has raised in the minds of laymen and stockmen. It is shown that every speaker endorsed summary slaughter as the most effective and economical plan. The quarantine method was declared by those who had had experience in combating the disease as unsatisfactory and more expensive in the end than direct slaughter. It was shown that the disease frequently recurs in the same animals and that the frequent sequelae of abscesses and pus formations serve to perpetuate the disease and make the animals a constant menace. The opinion of both experts and laymen was that the course adopted by the Illinois authorities when they began to kill the infected and exposed stock was the proper one, and no criticism of this course was even intimated, and many of them urged even greater dispatch and thoroughness in eradicating the epidemic. Professor Mumford of the animal husbandry department of the University of Illinois said the situation throughout the country was well in hand except in Illinois, where the contagion had been most virulent and extensive. At that time more than 500 herds had been killed and only 25 infected herds remained alive. Since that time there has been some extension of the trouble and the stock yards in Chicago have a second time been placed under quarantine and the yards disinfected and shipments of live stock from the yards curtailed for a short period. The report contains much valuable information about all phases of the disease.

Manufacture of Chemical Wares.—Stoppage of the importation of chemical wares from the war zone has stimulated their production elsewhere. The clay products section of the U. S. Bureau of Standards has recently given attention to the production of purified clays out of which to make crucibles for chemical laboratories. Clays were found out of which such wares could be made of equal quality to those produced abroad as far as resistance to temperature was concerned, but owing to impurities in the clay they were defective in color. Methods of purification of the clay have now been devised which makes possible the manufacture of wares of good color, not only for laboratory purposes, but for all white ware. It is stated that one firm has taken up the manufacture of chemical porcelain. Lead glazes are still required for this ware, and the bureau is experimenting with leadless glazes for the purpose, to overcome the objection to lead glazes on account of their alleged injurious consequences to workmen. The bureau says, however, that in most factories in this country probably little injury is caused and in the white ware potteries ill effects of plumbism exist to a very slight extent.

Medicolegal

Sufficiency of Indictment and Instruction Under Medical Practice Act

(State vs. Fruitger (Iowa), 149 N. W. R. 634)

The Supreme Court of Iowa affirms a conviction under an indictment charging the defendant with unlawfully holding himself out as a physician and assuming to treat sickness and disease without a certificate authorizing him to engage in such practice. With reference to alleged defect in the indictment, the court says that, if it understands the argument, it was that the charge in the indictment that the defendant wrongfully assumed to act as a physician, "without having obtained from the State Board of Medical Examiners of the state of Iowa and recording the same in the office of the recorder of Adair County, Iowa, a certificate authorizing him to practice as such," was an accusation of two distinct offenses, namely, the unlawful act of assuming the duties or functions of a physician without having obtained the proper certificate, and, second, the unlawful failure to file such certificate in the office of the recorder of Adair County. But the question raised was decided by this court adversely to the contention of the defendant in the case of State vs. Zechman, 138 N. W. R. 387. The indictment could omit all reference to the fact of filing or failure to file the certificate, and conviction could be had and upheld on the charge and proof that no such certificate had ever been obtained. Adhering to the rule of the cited case, it followed that there was no duplicity in the indictment. The only charge of public offense therein was the act of assuming to practice as a physician in Adair County without obtaining the proper certificate, and the further statement with reference to an alleged failure to file the same in said county could be disregarded as surplusage. It could not be said that the indictment charged no offense against the statute. It is true that under a similar statute the Supreme Court of Nebraska has held an indictment in this form to be fatally defective; but this court is inclined to think that the conclusion reached by it in the Zechman case does no violence to the language of such indictment or to any established rule intended for the protection of the accused.

Counsel said that the effect of one instruction was to charge the jury that to sustain a conviction it was sufficient to show that the defendant acted, or advertised, or held himself out to be a chiropractor, but that was not a fair interpretation of the court's language. What the court did instruct was that if the defendant, by such methods or in such manner, invited sick or diseased persons to come to him to be relieved from sickness or bodily infirmities, and he did receive such persons into his office and treated or "adjusted" such persons for the purpose of relieving their said ailments, then the jury would be authorized to find that he did publicly profess to cure and heal, within the meaning of the law. That this is a sound proposition of law, according to the terms of the statute, can hardly be questioned.

It was quite evident that fundamental complaint was of the statute itself and of its enforcement as being essentially unjust and unduly restrictive on the profession and practice of the healing art. Even if this objection be justified, the court is without authority to right the wrong. The remedy is with the legislature alone.

State Board of Health Cannot Remove Ineligible County Health Officer

(Van Brahle vs. State Board of Health (Ore.), 144 Pac. R. 1170)

The Supreme Court of Oregon affirms a judgment holding that the State Board of Health exceeded its jurisdiction in ordering the removal of the plaintiff from the office of county health officer of a county, to which he had been appointed by the county court of the county under the provisions of section 4695 of the state statutes. The court says that from an examination of the proceedings before the State Board of Health it was clear that the reason for the dismissal of

the plaintiff was that it was deemed by the board that he was not eligible to hold the office. He was not removed for any of the causes specified in section 4695. The board of health is not authorized by the statute to remove a county health officer for the reason that he is ineligible to hold that office. If the plaintiff was unlawfully holding the office in question, as held by the State Board of Health, a complete remedy is provided by virtue of section 366, authorizing an action at law in the name of the state. The court appreciates the importance and difficulties in enforcing the statute for the protection of the public. In the wisdom of the legislature it seems to be contemplated that the county health officer should, by reports made to him, have the advice and assistance of skilled physicians who have in most cases given special attention to the diseases which are to be reported to the State Board of Health. The law makers did not see fit to clothe the Board of Health with power to remove such an officer in case of a mistake or disagreement in the diagnosis of a contagious disease, or for a failure of such officer on a diagnosis to discover a contagious disease. Where authority is conferred on a board to remove a public officer, the proceeding must be strictly pursued; and, where an officer is appointed for a term, he cannot be removed except by express authority.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

Alabama State Medical Association, Birmingham, Apr. 20-23.
Amer. Assn. of Pathologists and Bacteriologists, St. Louis, Apr. 2-3.
American Urological Association, Baltimore, April 13-14.
Georgia Medical Association, Macon, April 21-23.
Louisiana State Medical Society, Lake Charles, April 20-22.
Maryland Medical and Chir. Faculty, Baltimore, April 27-29.
Medical Society of the Missouri Valley, Omaha, March 25-26.
New York State Medical Society, Buffalo, April 27-29.
South Carolina Medical Association, Greenwood, April 20-22.
Tennessee State Medical Association, Nashville, April 13-15.

NEW YORK ACADEMY OF MEDICINE

Meeting held Jan. 21, 1915

Cerebrospinal Fluid in Health and Disease

DR. CHARLES H. FRAZIER, Philadelphia: A study of the choroid plexus leaves little room for doubting that the cerebrospinal fluid is its excretory output. When foreign toxic substances are injected into the circulation the choroid plexus acts as an impermeable filter and prevents their entrance into the cerebrospinal fluid; on the other hand, when a dye is injected into the subarachnoid space, the brain and cord are at once stained. This throws a side light on salvarsan therapy. It would be more rational to inject salvarsan directly into the ventricles or subarachnoid space in cerebrospinal lues. The greater part of the fluid is derived from the choroid plexus, but some is derived from the perivascular system of the nervous tissues. The functions of the cerebrospinal fluid aside from those of a purely physical nature are analogous to those of the lymph nodes. It brings oxygen and glycogen to the tissues and carries away carbon dioxid and the products of brain metabolism. In every disease in which there is a departure from the normal in the quantity of cerebrospinal fluid, it is in the direction of increase and not of decrease. What are the factors which so disturb the balance between secretion and absorption as to be accompanied by a superabundance of fluid, and can one or the other be controlled? We found that thyroid extract had a specific inhibitory effect on the action of the choroid plexus. Alcoholic extracts of the thyroid gland were practically inert. Diiodotyrosin had the same retarding influence on the output of cerebrospinal fluid, although not in the same degree as the thyroid tissue itself. With the substances which acted as cerebral lymphagogues must be included those which caused a deficient oxygenation, such as pilocarpin, amyl nitrite, anesthetics and narcotics. The rate of the flow of the cerebrospinal fluid is practically uninfluenced by the ligation of the common carotid arteries.

The major part of the cerebrospinal fluid leaves the subarachnoid space via the venous channels rather than the lymphatics. Fluid escapes from the nerve sheaths and into the lymphatic system but slowly and in comparatively small quantities. The amount and rapidity of absorption is in proportion to the total area of subarachnoid space available. The cerebrospinal fluid is an important factor in certain clinical conditions. In all forms of meningitis, apart from lumbar puncture to relieve tension, there is no measure to be considered other than the use of specific serums when available. I have yet to see a patient with tuberculous meningitis of the acute type recover when pressure is relieved by decompression; nor have I heard of any case of suppurative meningitis which has been cured by drainage of the cisterna magna. Serous or aseptic meningitis presents very positive indications for the relief of pressure by such operative measures as subtemporal or suboccipital decompression. Tumors, irrespective of their size or seat, may exist without signs of tension. Palliative treatment of these tumors resolves itself largely into the problem of dealing with the associated hydrocephalus, and therefore, accompanying decompression or succeeding it, puncture of the corpus callosum should always be thought of. In our experimental work we have differentiated two types of hydrocephalus, an obstructive and a non-obstructive type. In the former of these, the chief pathogenic factor is delayed absorption, and the treatment becomes a problem of drainage. Of the latter, one cannot speak so positively; but it seems that treatment should be aimed at the secreting organ, the choroid gland. Thyroid extract gives some promise of being effective in suitable cases of hydrocephalus.

DISCUSSION

DR. MAX M. PEET: In the lantern demonstration I show the effect of intravenous injection of saline extracts of thyroid, brain, spleen, liver, ovary, testes and kidney. The extract of brain is shown to stimulate the secretion of cerebrospinal fluid by the choroid plexus. Thyroid extract was shown to slow markedly the rate of secretion of the choroid plexus. The other glandular extracts had no effect on the secretion of cerebrospinal fluid, although an apparent increase follows their injection. The records show that this apparent increase was purely a hemodynamic effect and was caused by the drop in arterial blood pressure which causes an increase in the venous sinus pressure which forces out preformed fluid from the ventricles.

A slide illustrating the new method of drainage of cerebrospinal fluid, devised by myself, is shown. Two strands of tubular silk are passed from the cisterna magna, down the back and into the pleural cavity. A case in which this was used successfully was reported.

F. H. PIKE: The formation of the body fluids by mere filtration through the blood vessels, subject to change with every variation in the pressure in the blood vessels, would not be a good arrangement. There is now a considerable body of facts tending to show that the variations in the caliber of the blood vessels going to particular organs are sometimes brought about by the products of metabolism of these organs without any necessarily direct effort on the central vasomotor mechanism. It is possible that the varying needs of the tissues in general are met by the changes in the blood and lymph supply occurring in response to the local action of these products of metabolism. The peculiar conditions of the cerebral circulation are of interest in connection with the formation of the cerebrospinal fluid. We have a rigid brain case, and incompressible brain substance occupying most of the space, and incompressible fluids filling all the remaining space. No more material can be introduced without crowding out something else that is already present. Increase in arterial flow can be accomplished only at the expense of decrease in volume of venous blood or of cerebrospinal fluid if the cerebral arteries dilate. The flow of

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blood through the brain may possibly be increased without change in the volume of the vessels, if the systemic blood pressure rises appreciably or considerably. There is no good evidence of a vasomotor system in the cerebral vessels which acts in harmony with the systemic vasomotor nerves. The nerve cells of the central system seem to be protected from sudden changes in blood supply through these peculiar conditions of the cerebral circulation. The other possibility of variation in nutrition with changes in activity exists in the cerebrospinal fluid if it is regarded as a nutritive fluid. If we imagine that the brain cells produce during metabolism certain substances which in their turn act on the cells of the choroid plexus to produce a greater flow of cerebrospinal fluid, we have a mechanism by which the varying needs of the brain cells may be met. The seat of formation of this fluid and its course fit with the view that the cerebrospinal fluid is a nutritive fluid. Thus absorption becomes a necessity if the nutrition of the cells of the central nervous system is adequately provided for. Such a view seems plausible, but one cannot say that it has been demonstrated.

DR. DAVID M. KAPLAN: Aside from the infections in which one finds the responsible micro-organisms, the cerebrospinal fluid also shows changes due to such general disturbances as diabetes, eclampsia, nephritis and jaundice. In diabetes, the presence of acetone is frequently a forerunner of a diabetic coma. In eclampsia, besides the increase in chlorids, appreciable quantities of lactic acid have been demonstrated. In nephritis, only those forms of the disease give rise to uremic states that show the accumulation of urea in the cerebrospinal fluid. When the renal impermeability is a mineral one, uremia, as a rule, does not develop. The physiologic limit of urea in the cerebrospinal fluid is 1 per cent. A fluid showing 3 per cent. or more is of very grave significance. In icteric states, one or the other of the constituents of bile is present in the fluid. Such fluids will occasionally show a positive Wassermann reaction, although no evidence of lues can be obtained. In anterior poliomyelitis, the acute stage of the disease is invariably accompanied by polynucleosis in the cerebrospinal fluid, which reaches its height in the preparalytic stage. The more chronic forms of the disease showing the paralyses are more often accompanied by an excess of protein matter and a variable pleocytosis. In the clinical picture known as "combined sclerosis," one frequently finds in the spinal fluid a mass of coagulation of protein matter which, as a rule, shows no pleocytosis and is frequently discolored yellow, a condition known as xanthochromia. These yellow fluids sometimes give the iron reaction and at other times do not, and hence they must be considered as having more than one origin. The discoloration and the peculiarly absent copper-reducing substance is more often encountered in endotheliomas than in gliosis of the cord. In the study of the various diseases of the nervous system caused by syphilis, neurologists tend to consider syphilis and general paresis as the two extremes from the diagnostic, therapeutic and prognostic points of view, and assign to tabes the intermediate position. There are certain unmistakable features which characterize the greater majority of fluids of the two extremes, namely, cerebrospinal syphilis and general paresis, which are only occasionally to be found in tabes. We find in cerebrospinal syphilis the highest and in general paresis the lowest cell counts, with certain exceptions. A fluid from a case of general paresis would always reduce copper; when this reduction is absent, one may exclude general paresis in making the diagnosis. In offering diagnostic suggestions from an analysis of the cerebrospinal fluid, one never depends on that feature alone, but correlates all the abnormal phenomena. In general paresis, the characteristic precipitation of colloidal gold is a very striking and constant feature. This, in connection with a positive Wassermann, a low cell count and protein excess, means general paresis, despite the fact that these findings may occasionally be obtained in patients who present very few symptoms suggestive of general paresis.

DR. BERNARD SACHS: In reflecting on the differences between this and other fluids, one notes the remarkable rapidity of secretion under certain conditions. In cases of central nervous diseases, particularly tabes and central lues, patients have been made comfortable after lumbar puncture, but in a few hours there will appear evidences of almost the same quantity as before puncture. These facts are of great importance and of physiologic interest. Another point of interest is the failure in the detection of cellular contents of the cerebrospinal fluid in cases of neoplasm in and around the spinal cord.

DR. DAVID J. KALISKI: Some examinations of spinal fluids have been made by Benedict of Cornell, and it was a surprise to find that arsenic introduced intravenously has been excreted within twenty-four hours by the choroid plexus and has been detected in the cerebrospinal fluid. This is rather contradictory to the findings of others. These facts are of great importance in the treatment of syphilitic diseases of the nervous system, and we should make no dogmatic statements regarding the absence of secretion from the choroid plexus after intravenous injections. In view of the rapid absorption of the spinal fluid it is rather far fetched to look on intravenous medication as a means of curing parenchymatous diseases of the central nervous system. In my experience, the presence of bile in the serum has never caused the Wassermann reaction to become positive.

DR. JOHN A. FORDYCE: In the past two years, 700 spinal fluids have been examined in my laboratory with the following results: Active and progressive tabes: cells 11 to 235; globulin + +, Wassermann + + to 0.2 c.c. in the majority, some giving inhibition with 0.1 and 0.05 c.c. Blood serum positive in about two-thirds of the cases. Quiescent tabes: cells 3 to 20; globulin usually positive and Wassermann negative in the fluid and serum. It is rare to have a pathologic increase in cells and a negative Wassermann with larger amounts of fluid. Only in exceptional cases was there a lymphocytosis of 30 or over with a negative Wassermann. Radiculitis: cells 3 to 12; excess of globulin, Wassermann negative. In two cases the serum was negative; in a third it became strongly positive after a provocative injection. Optic atrophy: cells 10 to 150, globulin + + in all except three cases, one ± with 67 cells, Wassermann + + to 0.4 c.c.; another 23 cells, globulin ±, Wassermann negative; and the third 15 cells, negative globulin and negative Wassermann. These cases had had several courses of treatment before the puncture was made. In the remaining cases the Wassermann was positive, some with only 0.8 or 1 c.c. of fluid. Paresis: cells from 20 to 240, globulin + +, Wassermann complete inhibition in majority to 0.1. Serum also strongly positive. Dr. Fordyce had seen only one case with a negative Wassermann in the fluid, which, however, reacted positively to the colloidal gold test. Cerebrospinal lues: cells 20 to 1,000, globulin positive and Wassermann in the fluid and blood usually strongly positive. One case with 98 cells and a positive Wassermann and globulin in the fluid gave a negative blood reaction.

Endarteritis: The serologic picture is usually negative, except for the presence of globulin. Sometimes there is a slight increase in cells — 7 to 12. The blood serum was positive in two-thirds of the cases. Status epilepticus in a heredosyphilitic: Fluid negative; serum positive. This case had received a great deal of treatment. Heredolues (three cases with headache): Negative. Syphilitic choroiditis: Two were negative in all four phases; one gave a slight excess of globulin. Early secondary syphilis: In less than 20 per cent. in the absence of clinical symptoms pointing to involvement of the central nervous system in the early secondary stage, a mild pleocytosis and positive globulin with negative Wassermann in the fluid. The blood serum in all gave complete inhibition. Multiple neuritis in diabetes with symptoms simulating tabes: Cells 8, other phases negative. Anesthetic leprosy: Cells 5, globulin positive, Wassermann negative; in serum some inhibition. Multiple sclerosis: In the two cases cells numbered 12 and 16, respectively; other phases were negative. In another there were 6 cells with an excess of globulin. The Wassermann in serum and fluid was negative. Transverse myelitis, syringomyelia, spinal tumor and twenty-three indeterminate neurologic cases with obscure symptoms

were negative in all four phases. Amyotrophic lateral sclerosis, Korsakoff's psychosis, and Huntington's chorea gave a positive Phase 1.

DR. LOUIS C. AGER: As to the action of thyroid extract in checking the secretion of cerebrospinal fluid, a case that recently came under observation is of interest. This child, 8 months old, had an attack of cerebrospinal meningitis from which he recovered under the Flexner treatment. Two weeks later he began to show symptoms of cerebral irritation and a bulging fontanel. Thyroid extract was given by the mouth, beginning with ¼ grain twice a day, increased in a few days to 2½ grains a day. There was a very pronounced improvement almost at once, but it was merely temporary. In a few weeks the pressure again returned, and the circumference of the head increased 5 cm. in eight weeks. Practically no fluid could be obtained on spinal puncture. The child died during an attempt to tap the ventricles.

DR. ISADOR ABRAHAMSON: While three factors are concerned in the production of internal hydrocephalus, faulty absorption, in my experience, has been the most important factor. Most often in increased intracranial pressure there is a free communication between the cranial and spinal cavities, the intraspinal pressure being directly proportionate to the intracranial, and here naturally obstruction as a factor is out of question. Secretory faults can also be excluded in most of these cases.

DR. FOSTER KENNEDY: Potentially the cerebrospinal fluid has a high nutritive value. Except in cases of prolonged diarrhea and vomiting in infants, and complete inanition in adults, I have never seen such extraordinary marasmatic conditions as follow the prolonged loss of the cerebrospinal fluid. Dr. Frazier finds that the administration of thyroid gland is capable of producing a reduction in the quantity of cerebrospinal fluid to one-third the normal flow. A non-alcoholic extract of the gland has been capable in animals and in one human patient of curing hydrocephalus due to an increased fluid production.

DR. CHARLES FRAZIER, Philadelphia: Of particular interest is the problem of producing an artificial hydrocephalus by the injection of choroid plexus. It is not possible to speak in figures as to the relative frequency of the various types of hydrocephalus, according to the classification given, although it seems that the cases of the purely obstructive type are in the minority.

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting held Feb. 3, 1915

The President, DR. JAMES C. WILSON, in the Chair

Study of the Comparative Toxicity of the Various Mercurial Preparations

DR. J. F. SCHAMBERG, DR. J. A. KOLMER and MR. R. W. RAIZIES: The toxicity of the various mercurial salts is directly proportionate to the amount of pure mercury contained. The inorganic salts, represented by the bichlorid, are no more toxic than the numerous organic combinations commonly employed. The differences in the molecular structure of the mercury compounds tested by us were found to be of relatively little importance as affecting their toxicity. The bichlorid of mercury was fatal on the average in intravenous doses above 2 mg. per kilo of body weight; administered intramuscularly it was fatal on the average above 6 mg. per kilo of body weight. The average relationship as to the toxicity between the intravenous and intramuscular administration of mercury was 4:1. The insoluble preparations, such as gray oil, calomel and the salicylate of mercury are absorbed at the rate of a little over 1 per cent. of the injected amount per day. Even at the end of six or seven weeks, almost 50 per cent. of the mercury of insoluble preparations may be unabsorbed at the site of the injection. The injection of the usual doses of insoluble mercurial compounds at weekly intervals must invariably lead to accumulation of the drug in the tissues. Insoluble mercurial injections should be given only by the skilled physician after careful consideration of the dose and of intervals of administration.

Mercury has a great affinity for the cells of the kidney and this organ is one of the earliest involved in mercurial intoxication. Hence, during the intensive treatment with mercury the necessity of careful examination of the urine from time to time should be emphasized.

DISCUSSION

DR. H. A. HARE: The mercurials are dangerous in the acute and subacute types of nephritis, to such an extent that for many years I have always, after administering mercurials except small doses of calomel followed the dosage by salines, sweeping them out. I have always had the urine examined microscopically and if red-blood cells were present or there was the slightest evidence of acute lesions in any part of the kidney I put mercury aside with even greater rigor than I would put arsenic aside if some such combination of drugs had been suggested for the case. This point was particularly impressed on my mind by a case of syphilitic nephritis, due to virulent syphilitic infection, in which the patient suffered from hematuria and in which the history was that on three occasions when given mercurial injections the hematuria greatly increased and the man suffered great pain over the kidneys. The so-called cumulative effect of mercury, also does not receive the attention it should. In view of the exceedingly slow progress of its elimination from the body proportionate caution should be observed in its employment.

DR. ROBERT N. WILLSON: It may be of interest to cite two cases of uremia occurring in the course of chronic interstitial nephritis, and both resulting from the administration of about 2 grains of calomel. One patient died in uremia. The other recovered from a fully developed state of uremia. A third patient with pericarditis received by error 64 grains of calomel within three days. He died, and microscopic sections from his kidneys showed the typical *verkalkte Niere* of the Germans. I have a large number of specimens made in Vienna from kidneys of patients treated in the luetic wards with mercury, all of which show the same type of kidney. Recently I saw a young woman who presented a curious combination of cardiac and neurasthenic symptoms, but whose apparently normal kidneys functionated perfectly as far as we could determine. Shortly after the administration of a small dose of calomel she vomited, the urinary flow ceased, she went into uremia, and died.

DR. DAVID RIESMAN: Does a soluble preparation injected into the tissues become an insoluble preparation?

DR. JAMES M. ANDERS: Can Dr. Schamberg recommend any special preparation of mercury for hypodermatic use? I have been in the habit of employing the salicylate hypodermically, with, as I have had reason to believe, excellent results, although in some cases inunctions gave even better results. What would be the proper interval between the injections in view of the cumulative effects of the drug?

DR. J. F. SCHAMBERG: The injection of a soluble salt of mercury into the tissues would doubtless lead to the formation of an insoluble compound; but this must be more or less rapidly reconverted into a soluble combination, else it could not be carried through the blood stream, influence the tissues therapeutically, and be eliminated through the kidneys. It must in the end become soluble, no matter what the primary local change is. I believe that inunctions constitute the safest method of employing mercury in massive doses. Professor Welander of Stockholm claims that much of the effect of mercurial inunctions is due to absorption of the mercury by the lungs; that there is a volatilization from the skin, with inspiration through the respiratory tract. Insoluble mercury compounds ought never to be injected oftener than once a week; if the dose is large, not oftener than every two weeks. Careful examination of the urine should be made from time to time. In rabbits that received daily intramuscular injections of mercury over a period of forty-eight days, the kidneys showed microscopic pathologic changes after necrospy, although during life albumin was only irregularly present in the urine. Mercury is a powerful kidney irritant. The two organs for which mercury has the

greatest selective affinity are the liver and the kidneys. This is not necessarily because it is eliminated through these organs, but because it is powerfully renotropic. Some years ago I saw a patient who received mercury by inunction, by injection and by mouth at the same time for a supposedly luetic eruption. She developed a severe nephritis with anasarca and she continued to eliminate the drug for 127 days after the last dose of mercury had been ingested.

Case of Hour-Glass Stomach

DR. H. A. HARE and DR. J. CHALMERS DACOSTA: The patient was a man of about 48 or 50 years of age who suffered from severe pain in the upper zone of the abdomen. The diagnosis was obscure on whether the condition was a malignant growth or ulcer. The roentgenogram showed a very extraordinary manifestation of hour-glass stomach. It is difficult to conceive of a deformity greater than the one shown which could be produced by disease. Dr. DaCosta ignored the fibrous band which represented the annular constriction, and bridged the space between the upper and lower parts of the stomach by anastomosis. The man died three or four days following operation from pneumonia at the base of the lung on the side of operation.

Physiologic Characteristics in Insanity. The Thymus and the Pituitary in Dementia Praecox

DR. S. D. W. LUDLUM: In a group of cases of dementia praecox Abderhalden reactions were obtained, in some cases to testicle and pancreas, in others to testes and thyroid, while in others no reactions were obtained. In the individuals who gave the reaction to testes and pancreas the following physiologic symptoms were observed: Leukopenia in exacerbations, leukocytosis in improvement, increased blood pressure, pulse feeble and rapid, temperature, 2 degrees above normal, exaggerated knee jerks, diminished cutaneous reflexes, increased electric reactions of muscle, tremor of tongue and extremities, increased weight, later loss of appetite, Westphalz Pilez pupillary sign, nutritional variations, temporary spastic legs, increased mechanical irritability of muscles. These symptoms are comparable to those obtained in animals after thymusectomy. In the schemata of interrelationships of glands of internal secretions the overactivity to testes and pancreas is consistent with underactivity of thymus; also the thymus of a dog whose thymus had been removed gave positive Abderhalden reactions to testes and pancreas. Several cases of this type were cured with thymus extract. The majority of those cases which gave no Abderhalden reaction had the physiologic and morphologic characteristics of dyspituitarism and improved with pituitary extract. Those cases giving the reaction to testes and thyroid were of the catatonic type. In addition to these forms there is a hyperpituitary mental disturbance which has its prototype in a mentally retarded girl of 5 years who has the stature of 8 years of age. Her serum reacts only to the pituitary gland and she represents the beginning of gigantism. The prototype is followed by cases in adults who exhibited unusually large skeleton growths and reversal of sexual characteristics with the mental symptoms of hypomania. The treatment of these cases can be successfully carried out if the case is sufficiently studied.

The Scholar's Leadership.—The true scholar is probably not aware that he is exercising any leadership, for he is not a conscious leader. He is not the self-constituted head of a so-called school, for that suggests a too close adhesion to unproved doctrines, and is not infrequently exploited for personal and national aggrandizement. He is content with placing his work on record and leaving it to its fate. The true scholar is not a partisan or advocate because the two or more sides presented by every question for due consideration are quickly detected by his periscopic vision, and he may see little to choose between them. He may at times become partisan to restore an upset equilibrium between contesting sides so that the actual facts may come into better view. —Theobald Smith: *Boston Med. and Surg. Jour.*

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

January, LXXI, No. 3, pp. 439-683

1 Rôle of Psychiatric Dispensary: Review of First Year's Work of Dispensary of Phipp's Psychiatric Clinic. C. M. Campbell, Baltimore.
2 Five Cases of Intracranial Injection of Autoserum Salvarsan. D. M. Wardner, Cedar Grove, N. J.
3 Insanity in Children. J. H. W. Rhein, Philadelphia.
4 *Epileptic Dementia. A. Gordon, Philadelphia.
5 Expert Testimony by Alienists and Neurologists. C. A. Porteous and H. V. Robinson, Montreal, Canada.
6 Modern Treatment of Inebriety. I. H. Neff, Foxborough, Mass.
7 Prevention of Suicide. T. A. Williams, Washington, D. C.
8 Present Status of Application of Abderhalden Dialysis Method to Psychiatry. S. T. Orton, Philadelphia.
9 *Case of Chronic Progressive Chorea. J. A. F. Pfeiffer, Washington, D. C.
10 *Topographic Distribution of Cortex Lesions and Anomalies in Dementia Praecox, with Some Account of Their Functional Significance. E. E. Southard, Boston.

4. **Epileptic Dementia.**—According to Gordon normal intellectual faculties may coexist with epilepsy, provided the latter is not frequent. Should epilepsy become frequent, it eventually exercises a destructive influence on the mind. The latter consists of retrogression of intellectual power, namely, a gradual, progressive feebleness of intellect, leading to dementia. Epileptic dementia may develop at any age. Should epilepsy appear at the age of adolescence, the dementia assumes the clinical picture of dementia praecox. When epilepsy develops in an adult, the dementia may resemble that of paresis. If an elderly person suffers from epileptic seizures, his mental condition may simulate senile dementia. A thorough analysis of all such cases will reveal the fact that the resemblance to the above diseases is not a profound one; the individual characteristics of epileptics which are invariably present will soon enable one to ascertain the true nature of epileptic dementia. The majority of epileptic dements present family antecedents of a neuropathic nature.

9. **Case of Chronic Progressive Chorea.**—From an exhaustive anatomic study in the case reported, Pfeiffer concludes that the involuntary movements in this disease probably result from a primary degeneration of the neurons in the nucleus ruber, the lateral nucleus of the optic thalamus and the lenticulate nucleus, thus interfering with the conductive integrity of the cerebello-thalamo-rubro-cortical path. As regards the brain and spinal cord, the motor cells were well preserved, and the cellular changes present were of a character similar to those encountered in conditions unassociated with choreiform movements. The pyramidal system was intact and no systematized fiber degeneration could be detected in the spinal cord.

10. **Cortex Lesions in Dementia Praecox.**—In summing up this lengthy and detailed study Southard calls especial attention to the following points: (1) The constancy of mild general or focal atrophies in cases lasting long enough to yield these; (2) the tendency to an exhibition of lesions somewhat more markedly in the left hemisphere; (3) the preference of the lesions for the "association centers" of Flechsig; (4) the high correlation of auditory hallucinosis and temporal-lobe lesions, as also (5) of catatonia and parietal lesions (*cerea flexibilitas*, especially postcentral), and (6) of the more frequent form of delusions and frontal-lobe disease; (7) the possible existence of a hyperphantasia group with parietal correlations, and of (8) a large internal hydrocephalus group with catatonic and hallucinotic correlations rather than delusional.

American Journal of Medical Sciences, Philadelphia

February, CXLIX, No. 2, pp. 157-312

11 *New Uses of Specific Skin Tests in Certain of Infectious Diseases. F. P. Gay, Berkeley, Cal.
12 Indications for Artificial Nutrition. M. Einhorn, New York.

13 Continuous Clonic Spasm of Left Arm (Epilepsia Continua) Caused by Tumor of Brain. C. W. Burr, Philadelphia.
14 *Pulsus Alternans. H. C. Gordinier, New York.
15 *What Facts of Diagnostic or Prognostic Value Can Be Determined from Test-Meal Examination of Patients with Gastric Symptoms? F. Smithies, Chicago.
16 *Presence of Continued High Temperature in Malignant Tumors. J. Phillips, Cleveland.
17 *Vasomotor Mechanism in Pneumonia. L. H. Newburgh, Boston.
18 *Vasomotor and Trophic Disturbances of Upper Extremities; with Particular Reference to Thrombo-Angeitis Obliterans. L. Buerger, New York.
19 Importance of Paranasal Sinuses in Explanation of Pain in Face, Head, Neck and Shoulders. M. A. Bliss, St. Louis.
20 Functional Tests in Experimental Tartrate Nephritis. A. C. Potter and E. T. Bell, Minneapolis.
21 *Treatment of Cerebrospinal Syphilis by Intraspinous Injections of Salvarsanized Serum. A. G. Rytina and C. C. W. Judd, Maryland.
22 *Concentration of Blood Sugar in Health and Disease as Determined by Bang's Micromethod. A. H. Hopkins, Philadelphia.
23 Extraphysiologic or Putrefactive Urea. G. D. Palacios, Venezuela.

11. Skin Tests in Certain Infectious Diseases.—Gay shows that in streptotrichosis the skin test serves to differentiate closely related infections, and in the case of rabbits immunized against vaccine virus it may be used indirectly to diagnose human smallpox. In the case of the Schick reaction with diphtheria toxin and the typhoidin reaction of Gay and Force, local tests indicate protection or lack of protection against the disease in question and therefore indicate when immunization is necessary. The accelerated vaccine reaction of Jenner and v. Pirquet becomes of value as indicating protection against smallpox and the fruitlessness of further attempts at producing vaccinia.

14. Pulsus Alternans.—Gordinier agrees with Mackenzie and Windle in giving pulsus alternans the third place among pulse irregularities, extrasystoles being placed first and the persistent irregularity of auricular fibrillation the second. Clinical alternation is frequently overlooked because it cannot be recognized without the graphic registration of the pulse. Its presence is positive evidence of defects of the function of contractility, this in turn being due to temporary or permanent myocardial changes. From a prognostic standpoint the presence of pulsus alternans, save the temporary form, due to great rapidity of rate, is grave, as it indicates extensive myocardial degeneration, most patients dying from cardiac insufficiency within three years of its onset. Extrasystoles, invariably followed by alternations, also indicate exhaustion of contractility and carry with them a grave prognosis. Persistent false bradycardia, due to feeble systoles, in which the deficit between the apex beat and the pulse rate is but little altered by the exhibition of cardiac tonics, such as digitalis or strophanthus, also indicate grave defects of contractility, with extensive myocardial degeneration and unfavorable prognosis.

15. Value of Test-Meal Examination in Gastric Symptoms.—Benign gastric retention (usually ulcer): In 89 per cent. of cases of this type the presence of large numbers of actively budding yeasts, associated with large and small sarcina and bacilli, apparently of the colon group, and food bits were demonstrated by Smithies. The gastric acidity was generally above 50. Gastric cancer. In 93.8 per cent. of his proved, late, malignant cases, organisms of the Boas-Oppler group, associated with food retention and acid averaging below 10, was a characteristic picture. In but 30 per cent. of instances were budding yeasts concomitant. In but 10 per cent. were sarcina associated. Threads of streptococci were found in 6.2 per cent. (more commonly in the non-retention group). There is no characteristic microscopic picture of early gastric cancer other than that associated with gastric ulcer of the retention type. In less than 1 per cent. of cases of gastric cancer was Smithies able to demonstrate so-called "cancer cells" with active mitoses. These were all late cases or cases in which the cardiac orifice was involved with a sloughing growth. Achylia gastrica: Primary or secondary. In gastric extracts of low or absent hydrochloric acid, when there is atrophy of the mucosa and cases in which motility is not interfered with, there are found long chains of streptococci (resembling beads or a rosary); groups of large, deep-staining cocci, and a peculiar, short, fat, acid-fast rod or coccobacillus that grows in short chains or pairs, or alone. When perforation into an adjacent viscus has taken place in malignant ulcer or primary cancer, or in cases in which obstruction has occurred below the duodenum, the picture of immense numbers of thick coccobacilli, with or without spirilla or streptococci, in association with low acidity, retarded food progress and putrefaction, as evidenced by the odor is shown in more than 94 per cent. of instances.

16. High Temperature in Malignant Tumors.—It seems to Phillips that the most reasonable explanation of the fever is that because of the constant degeneration of tumor tissues, products of autolysis are formed which enter the circulation in small quantities, producing systemic disturbances, such as fever. However, though this seems very probable, no such substances have been isolated nor has their presence been demonstrated.

17. Vasomotor Mechanism in Pneumonia.—Two main arguments are offered in support of the hypothesis that the peripheral circulation is paralyzed in pneumonia. The first argument is based on the assumption that the blood pressure is abnormally low in fatal pneumonia. It has been shown that this assumption is incorrect. The second argument is that the vasomotor reflexes are absent in fatal pneumococcus septicemia. This has been disproved by positive data showing that the vasomotor reflexes are normal in fatal pneumonia. Newburgh believes that the conclusion that the vasomotor apparatus is not impaired in pneumonia is fully warranted.

18. Vasomotor and Trophic Disturbances of Arms.—In thrombo-angeitis obliterans Buerger states that a definite and specific morphologic change in the arteries and veins is responsible for the varied phenomena in the superficial capillaries. In Raynaud's and allied diseases the vasomotor and trophic disturbances are the outcome of irritative and exhaustive processes of the sympathetic nervous system.

21. Injection of Salvarsanized Serum in Cerebrospinal Syphilis.—Intraspinous injection of salvarsanized serum, with proper precautions is held to be a safe treatment by Rytina and Judd. The results obtained indicate its superiority over the older known methods. They urge that treatment must be persisted in until the laboratory findings are negative, irrespective of the clinical progress observed. The permanency of the improvement still has to be determined.

22. Blood Sugar in Health and Disease.—According to Hopkins in health a moderate rise in blood sugar (0.14 to 0.15 per cent.) occurs after feeding 100 gm. of glucose, reaching its height in from one-half to two hours and quickly subsiding. There is no constant blood sugar level at which sugar appears in the urine. Evidently absorption after rectal and subcutaneous injection is slower than after feeding by mouth; however, owing to the discomfort produced by the former methods this series is too limited to permit of definite conclusions in regard to this point. In cases in which a disturbance in carbohydrate metabolism exists there may be a normal sugar concentration associated with a most pronounced alimentary hyperglycemia. In diabetes, alimentary hyperglycemia is pronounced, the height of the sugar level appearing at any time from one-half to three hours after the ingestion of glucose, and the duration being more prolonged than in other conditions. Pancreatic, nephritic and pituitary cases all furnish very high figures after feeding glucose, the duration lying between that of normal and of diabetic patients.

A moderate hyperglycemia occurs in many high pressure nephritic cases, and frequently in those with low phthalein elimination. In most cases of nephritis without high pressure the blood sugar is normal. Edema and hepatic congestion do not influence blood sugar values, though the rôle they may play in alimentary hyperglycemia, which is pronounced in nephritis, Hopkins says, he is not prepared to say at this time. A rise in blood sugar occurs in pneumonia and may be present in the absence of fever. It is apparently uninfluenced by blood pressure, leukocytosis, or renal involvement. Hyperglycemia occurs quite constantly in apoplexy, typhoid, and tuberculosis in the presence of fever

and in some cases of cancer. The test, owing to its simplicity and accuracy, affords a practical method for early diagnosis and control of dietary therapeusis.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

February, II, No. 8, pp. 489-552

24 **Filterability and Biology of Spirochetes.** S. B. Wolbach, Boston.
25 Action of Light on Protoplasm. W. T. Bovie, Boston.
26 *Sparganum Mansoni. First Reported American Case. J. T. Moore, Houston, Tex.
27 *Treatment of Ground Itch. N. Barlow, Guyamel, Spanish Honduras.
28 Case of Uta Venomosa. W. F. Bailey, Cerro de Paseo, Peru.

26. **Sparganum Mansoni.**—This larval cestode was discovered by Moore in a mass or tumor removed by him from the breast of a man aged 47.

27. **Treatment of Ground-Itch.**—The treatment emphasized by Barlow consists in the application of a solution of 3 per cent. salicylic acid in ethyl alcohol. Pledgets of cotton are soaked in the solution, applied to the affected areas, and left in place five minutes. The treatment is repeated twice daily. Cases of ground-itch uncomplicated with secondary infection are relieved immediately, and entirely cured in from two to four days.

Annals of Ophthalmology, St. Louis

January, XXIV, No. 1, pp. 1-216

29 **Pathology of Corneal Section and Its Complications in Cataract Extraction.** F. Tooke, Montreal, Canada.
30 Contraction of Frontalis in Abduction of Eyeball. W. Zentmayer, Philadelphia.
31 Present Knowledge of Focal Localization Along Visual Paths. C. Barck, St. Louis.
32 Intra-Ocular Sarcoma. Report of Case of Spontaneous Rupture of Globe. W. B. Weidler, New York.
33 Curvature and Index Myopia. Report of Cases. A. E. Davis, New York.
34 Case of **Persistent Ring Scotoma Following Repeated and Prolonged Gazing at Furnace Fire.** J. H. Claiborne, New York.
35 Case of Complete Sclerosis of Retinal Circulation. W. Zentmayer, Philadelphia.

Arkansas State Medical Society Journal, Little Rock

February, XI, No. 9, pp. 207-230

36 Mucous Colitis. T. Douglass, Ozark.
37 Diagnosis. T. F. Kittrell, Texarkana.
38 Purpura. Report of Cases. J. Chesnutt, Hot Springs.

Archives of Internal Medicine, Chicago

February, XV, No. 2, pp. 181-340

39 Action of Atophan and Novatophan in Gout and Iritis. C. A. Smith and P. B. Hawk, Philadelphia.
40 Radio-Activity of Mineral Waters of Hot Springs, Warm Springs and Healing Springs in Hot Springs, Va. J. C. Hemmeter and E. Zneblin, Baltimore.
41 *Different Nitrogenous Diets in Chronic Nephritis. C. Frothingham, Jr., and W. G. Smillie, Boston.
42 *Case of Congenital Hemolytic Jaundice with Splenomegaly. J. P. McKelvy and J. Rosenbloom, Pittsburgh.
43 *Functional Changes in Experimental Hydronephrosis. N. M. Keith and R. R. Snowden, Baltimore.
44 Employment of Specific and Non-Specific Antigens in Performance of Gonococci Complement-Fixation Test. B. A. Thomas, R. H. Ivy and J. C. Birdsall, Philadelphia.
45 *How Shall We Tell Whether or Not Myocardium Is Competent? J. M. Swan, Rochester, N. Y.
46 *Therapeutic Action of Iodin. J. W. Jobling and W. Petersen, New York.
47 Renal Function in Acute Experimental Unilateral Nephritis. W. C. Quinby and R. Fitz, Boston.
48 *Studies in Paroxysmal Edema. W. W. Palmer, Boston.

41. **Different Nitrogenous Diets in Chronic Nephritis.**—Attention is directed by Frothingham and Smillie to the fact that in certain types of chronic nephritis the nitrogenous content of the diet should be carefully watched in order to prevent an increase in non-protein nitrogen in the blood. The exact effect of an increase in blood nitrogen produced by a high nitrogenous diet is not known at present, but presumably it is unfavorable to the best interests of the patient, since in some it increases their discomfort. A diet low in nitrogen content will frequently keep down to normal the non-protein nitrogen of the blood in chronic nephritis.

42. **Case of Congenital Hemolytic Jaundice with Splenomegaly.**—A case of congenital hemolytic jaundice with splenomegaly and increased fragility of the red cells is described by McKelvy and Rosenbloom together with a metabolism experiment. In a metabolism experiment of five days, there was a loss of 4.06 gm. of nitrogen, while the urinary nitrogen partition is normal in character with the exception of the uric-acid nitrogen, which is increased. The absorption of nitrogen was normal. The urinary sulphur partition is normal in character with occasional increased excretions of ethereal sulphates. In the five days there was a loss of 1.88 gm. of sulphur. In the five days there was a loss of 0.482 gm. of calcium oxid and 0.924 gm. of magnesium oxid. There was a phosphorus retention of 0.07 gm., while the amounts of earthy phosphates and total phosphates may be considered normal. There was a loss of 0.1199 gm. of iron in the five days, with marked increased amounts of iron excreted in the urine and feces. The fat metabolism was normal, with an absorption of about 91 per cent. of the ingested fat. The amounts of neutral fat, fatty acids and soaps in the stool were normal. Urobilin and urobilinogen were present in the urine and feces. Bilirubin and hemoglobin were absent from the urine and feces.

43. **Functional Changes in Experimental Hydronephrosis.**—A study of the functional changes that occur from day to day in an animal when the only deviation from normal is an increased intra-ureteral pressure is presented by Keith and Snowden. They found that an incomplete ureteral obstruction in dogs, causing a back pressure of from 12 to 30 cm. of water, results in the development of a hydronephrosis. This hydronephrosis causes a definite disturbance of renal function, characterized by polyuria, traces of albumin, diminished output of phenolsulphonephthalein and delayed excretion of lactose. There is no delay in the appearance of a glycosuria after the injection of phloridzin. When one kidney is removed from an animal and the foregoing functional changes are brought about in the remaining organ, by the production of a hydronephrosis, the non-protein nitrogen content of the blood rises, and remains at this increased level (with slight variations) for a considerable period of time, unassociated with toxic symptoms. This gives place to a sudden, severe, renal insufficiency, rapidly fatal, and characterized by marked toxemia, great increase in nitrogen content of the blood and very low phenolsulphonephthalein output. During this final stage of renal insufficiency, caused by back pressure alone, or by back pressure with superimposed infection, there is a true nitrogen retention. Under the conditions established in these experiments the occurrence of pyelonephritis is only a question of time; the animals which came to necropsy within ten days of the operation showed no signs of infection.

45. **How Shall We Tell Whether or Not Myocardium is Competent?**—Swan has compared the variations in the pulse rate in the recumbent and in the erect posture, the cardiac efficiency factor of Tigerstedt, the percentage of the pulse pressure formed by the second phase of the auscultatory blood pressure reading, the C. S.: C. W. (cardiac strength and cardiac weakness) ratio of Goodman and Howell and the cardiac overload factor of Stone in ten fatal cases of cardiac and cardiorenal disease; in seven cases of compensated cardiac disease; in six cases of cardiac decompensation which subsequently had compensation restored; in eight cases of chronic interstitial nephritis in which the patients are still living, and in nine cases of various diseases in which the functional capacity of the myocardium was of importance in prognosis.

Briefly, he believes as a result of his study that all four of these factors have some value in determining the efficiency of the myocardium. He is inclined to think at present that the cardiac efficiency factor of Tigerstedt, and the percentage of the pressure formed by the second phase, are the most important. A cardiac efficiency factor of 40 per cent. or over would seem to point out distinct myocardial inefficiency. A second phase of 30 per cent. or under would seem to indicate the same condition.

The C. S.: C. W. ratio is less important because it so often cannot be determined; and again, because a small second phase is very frequently made up by a large third phase.

On the other hand, a C. S.:C. W. ratio in which the C. W. factor is greater than the C. S. factor is indicative of disturbance of the myocardium, functional if not organic. The overload factor of Stone is indicative more of peripheral resistance than of myocardial weakness. A cardiac load below 50 per cent., as determined by this method, giving a negative overload may have some significance; but it will require further study to determine its nature.

46. **Therapeutic Action of Iodin.**—According to Jobling and Petersen iodin neutralizes the action of the agents which prevent solution and absorption of necrotic tissue, and at the same time lays bare to the action of the real germicidal agent the infecting organism which previously had been protected by the necrotic tissue. With the exposure of the infecting organism, such agents as mercury and salvarsan would be much more effective.

48. **Studies in Paroxysmal Edema.**—Two cases are cited by Palmer which illustrate the well-known relation between sodium chlorid and edema, and suggest a possible explanation in some cases of edema of obscure cause. The impermeability to salt on the part of the kidney is an important factor. Attention is called to the bowel as a vehicle for the excretion of salt. This fact is important in the treatment of cases with edema of obscure origin. Palmer says that in certain types of edema there may exist mild grades of acidosis which may play some rôle in the persistence of the condition.

Boston Medical and Surgical Journal

February 25, CLXXII, No. 8, pp. 285-320

49 *Experimental Use of Magnetism for Locating Needles in Tissues. G. H. Monks, Boston.
50 Study of Disturbances of Stomach. H. F. Hewes, Boston.
51 Plastic Surgery in Procidentia. Report of Twenty-Five Cases. F. W. Duckering, Boston.
52 Diverticulum of Bladder. H. Cabot, Boston.
53 Thackeray's Physicians. W. P. Coues, Boston.

49. **Use of Magnetism for Locating Needles in Tissues.**—The procedure devised by Monks is as follows: The buried needle is magnetized by passing a magnet over the locality in which this needle is supposed to be. The best results are obtained when the long axis of the magnet is in the same line as the axis of the needle. The examining needle (magnetized and suspended in the middle from a fine silk thread) is then slowly passed over the same locality. In the event that it passes over the buried needle, provided that needle is not too far away from the surface—one end or the other of the examining needle will be attracted and will dip in the direction of the buried needle. Monks has not had the opportunity of trying this method on the living subject, but has used it successfully under many different conditions. Magnetizing a fragment of a needle through glass, wood, felt and various other substances of different thicknesses up to one-half inch and even occasionally more. He has also on several occasions, found a needle through an incision into a piece of meat, the needle having previously been hidden in the meat by another person without his knowing its position.

Bulletin of Johns Hopkins Hospital, Baltimore

February, XXVI, No. 288, pp. 37-68

54 *Hypersensitiveness to Pneumococcus Protein, with Special Reference to Its Relation to Immunity. P. W. Clough, Baltimore.
55 *Recognition of Atypical Forms of Intestinal Amebiasis. A. W. Sellards and W. A. Baetjer, Baltimore.
56 *Experiences with Phenolsulphonephthalein Method of Testing Function of Kidney. O. Hess.

54. **Hypersensitiveness to Pneumococcus Protein.**—By means of a slight modification of Besredka's method, a "protein" extract was obtained by Clough from pneumococci which would sensitize normal guinea pigs, and which would specifically intoxicate suitable sensitized guinea pigs. But it was not found possible to prepare extracts in this way which uniformly caused acute fatal reactions in sensitized animals. There is quantitatively a certain degree of specificity in the reactions of suitably sensitized animals to extracts of pneumococcus and *Streptococcus viridans;* probably also in reactions to these extracts and to extracts of *Streptococcus pyogenes;* but this specificity is not absolute. Guinea pigs sensitized with extracts of pneumococci showed inconstantly a very slight grade of immunity to infection with living, virulent cultures. Animals highly immunized by repeated subcutaneous injections of living virulent cultures showed also a marked degree of hypersensitiveness to pneumococcus extracts. It was not possible to demonstrate a condition of hypersensitiveness to pneumococcus "protein" in patients with pneumonia by the local application of a solution of the protein to the conjunctiva or by intracutaneous injections.

55. **Recognition of Atypical Forms of Intestinal Amebiasis.**—In the diagnosis of amebic dysentery it is ordinarily considered essential that the presence of *E. histolytica* be demonstrated in association with definite clinical symptoms. In three cases of obscure diarrhea seen by the authors it was found that ameba were present in the intestine, which could not be identified morphologically with either *E. histolytica* or *E. coli.* Animal inoculation proved that these ameba were definitely pathogenic, the symptoms which characterized the disease in the patient appearing in the animals. After a careful consideration of the various factors involved in these cases they feel that it is necessary to diagnose amebic dysentery (intestinal amebiasis) under conditions in which the clinical symptoms are distinctly atypical and the ameba present vary markedly in their morphology from *E. histolytica.* Indeed, amebic dysentery must sometimes be diagnosed in the absence of trophozoites and when only two and three nucleated cysts are present. A diagnosis under such conditions should be confirmed by the inoculation of animals.

As regards the systematic position of these strains and their relation to histolytica, definite evidence was obtained that the amount of chromatin which characterizes the nucleus of *E. histolytica* may undergo fairly marked variation. Also the number of nuclei in the propagative stage has always been considered as being sufficiently constant to furnish a satisfactory basis for the differentiation of species. In these strains marked variation occurred in the number of nuclei in the cysts, sometimes only two and three being found and under other conditions four and often five or six nuclei. Consequently Sellards and Baetjer prefer to regard the strains of ameba occurring in these cases, not as a new variety but as an atypical histolytica temporarily modified by environment.

56. **Use of Phenolsulphonephthalein in Testing Function of Kidney.**—Hess' cases of unilateral renal disease, nephrolithiasis, pyonephrosis, etc., some of them confirmed by operation, show that the phenolsulphonephthalein test is valuable for determining the amount of work each kidney is capable of doing. It is superior to other color tests in the accuracy of the information it yields. The result of the phenolsulphonephthalein test shows how much of the parenchyma is involved, and is of much value in the differential diagnosis of doubtful renal tumors. Although there may be some cases with severe clinical symptoms in which the test unexpectedly shows good renal function, Hess believes, we are nevertheless justified in concluding that the phenolsulphonephthalein test surpasses all other similar methods by its simplicity. It can be applied immediately without any dietary preparation, and can be used in all cases, even uremic conditions. The result is rapidly obtained, and is of value both for diagnosis and prognosis.

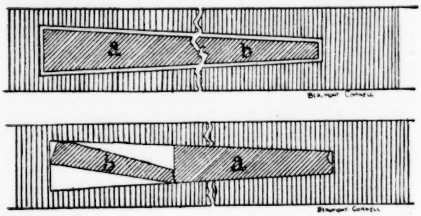
Canadian Medical Association Journal, Toronto

February, V, No. 2, pp. 85-180

57 Acute Abdomen. J. M. Elder, Montreal.
58 Diagnosis and Treatment of Gastric and Duodenal Ulcers. M. Einhorn, New York.
59 Use of Bone Graft in Surgery. W. G. Turner, Montreal.
60 *Bone Wedging—Method of Eliminating Introduction of Foreign Materials in Open Operations on Fractures. W. E. Gallie, Toronto.
61 Early Diagnosis of Tuberculosis. D. Townsend, River Glade, New Brunswick.
62 Septic Thrombophlebitis of Portal Vein, Complicating Gangrenous Appendicitis. B. H. Champion and J. J. Mason, Vancouver.

60. **Bone Wedging.**—Through a free incision Gallie exposes the ends of the fragments and with the aid of Lane's bone forceps, the fracture is reduced. While an assistant holds the bones in correct attitude, the surgeon applies a motor

saw to the fragments, cutting out two pieces, as shown in the accompanying diagram. Each piece is wedge-shaped and the planes of the sides are perfectly parallel. The piece A is now driven solidly into the space left by the removal of B, and owing to its tapering shape, it wedges itself solidly into both fragments and thus dove tails the fracture together. The piece B is then dropped in behind A to assist in holding it in



place. This is not an intramedullary splint, as the operation, to be successful, requires the hard bone of the cortex to hold the wedge properly. The incision is closed in the usual way with catgut and horse hair and a plaster spica applied. This operation has been performed by Gallie on six occasions and so far has been quite successful.

Colorado Medicine, Denver

February, XII, No. 2, pp. 33-64

63 Anemia, Dominant Constitutional Disorder of Colorado. H. Sewall, Denver.
64 Relation of Tubercle Bacilluria to Pulmonary Tuberculosis. O. S. Fowler and J. A. Philpott, Denver.
65 Neurology of Epidemic or Acute Anterior Poliomyelitis. G. A. Moleen, Denver.
66 Prophylaxis and Orthopedic Management of Anterior Poliomyelitis. S. F. Jones, Denver.

Delaware Medical Journal, Wilmington

December, VI, No. 1, 1-26

67 Cases Treated by Physical Therapeutics. W. Marshall, Jr., Milford.

Florida Medical Association Journal, Jacksonville

February, I, No. 8, pp. 225-256

68 Roentgen Rays in Treatment of Cancer. J. D. MacRae, Tampa.
69 Intestinal Resection Without Anesthesia. R. C. Turck, Jacksonville.
70 Syphilis of Oral Cavity. W. P. Dey, Jacksonville.
71 Rôle of Pyorrhea in Etiology of Nervous and Mental Diseases. J. H. Randolph, Jacksonville.

Journal of Biological Chemistry, Baltimore

February, XX, No. 2, pp. 97-174

72 *Improved Method for Estimation of Inorganic Phosphoric Acid in Certain Tissues and Food Products. R. M. Chapin and W. C. Powick, Washington, D. C.
73 *Size and Composition of Thymus Gland. F. Fenger, Chicago.
74 Influence of Diet of Marine Algae on Iodin Content of Sheep's Thyroid. A. Hunter and S. Simpson, Ithaca, N. Y.
75 Distribution of Mercury in Body in Case of Acute Bichlorid of Mercury Poisoning. J. Rosenbloom, Pittsburgh.
76 *Estimation of Benzoic Acid in Urine. G. W. Raiziss and H. Dubin, Philadelphia.
77 *Theory of Diabetes. IV. Parallelism Between Effects of Pancreas and Those of Metallic Hydroxids on Sugars. R. T. Woodyatt, Chicago.
78 Condition of Casein and Salts in Milk. L. L. Van Slyke and A. W. Bosworth, Geneva, N. Y.
79 Researches on Purines. XVI. Isomeric Monomethyl Derivatives of 2-Methylmercapto-4-Amino-6-Oxypyrimidin. On 1-Methyl-2-Methylmercapto-6, 8-Dioxypurin. C. O. Johns and B. M. Hendrix, New Haven, Conn.
80 Lipins in Nutrition. C. G. MacArthur and C. L. Luckett, Urbana, Ill.

72. **Estimation of Inorganic Phosphoric Acid.**—An improved method for the determination of inorganic phosphoric acid in tissues has been devised by Chapin and Powick which has the following advantages over the methods customarily used. It does not involve the action of heat or of strong reagents on the organic matter present in the tissue. Bacterial decomposition of the organic matter is prevented by the presence of picric acid, a powerful antiseptic. The precipitation is effected after the removal of the proteid matter, and therefore is not influenced by the protective action of colloids; while contamination with organic compounds of phosphorus is reduced to a minimum. Tedious filtrations are avoided by using an aliquot portion of the filtrate from the picric-acid coagulum for the determination of inorganic phosphoric acid. A rapid and accurate chemical method has been employed for determining the proportional part of the whole solution represented by the aliquot part used. The method described, and its several modifications, have been experimentally tested and found to be rapid and accurate.

73. **Size and Composition of Thymus Gland.**—Fenger claims that the fetuses and young growing animals contain very much more thymus tissue per unit of body weight than fully mature animals. The fetal thymus is exceptionally rich in blood and contains nuclein bodies and phosphates in amounts equal to those found in the glands from young growing animals, indicating that the gland is active therapeutically at least three months before maturity of the fetus. Thymus glands from full-grown animals also contain nuclein bodies and phosphates, indicating that the gland does not completely cease its systemic activity during the reproductive period of these animals. Adult cattle and sheep (herbivora) contain more thymus tissue per unit of body weight than adult hogs (omnivora).

76. **Benzoic Acid in Urine.**—The method devised by Raiziss and Dubin is a modification of that proposed by Folin and Flanders for ketchup. The procedure is as follows: One hundred c.c. of fresh urine are pipeted into a 500 c.c. short-stemmed-separatory funnel, and acidified with 1 c.c. of concentrated nitric acid. Enough ammonium sulphate (50 to 60 gm.) to saturate the urine is added, and the benzoic acid is extracted with four portions of pure toluene of 50, 40, 30 and 30 c.c. each, respectively. The combined toluene extracts are then washed twice, using 100 c.c. each time, with saturated sodium chlorid solution, containing in each liter 0.5 c.c. of concentrated hydrochloric acid. The titration is made with N/10 or N/20 sodium alcoholate, using phenolphthalein as an indicator. The end point is a definite pink, lasting two or three minutes.

77. **Theory of Diabetes.**—The possibility is presented by Woodyatt that between certain breakdown products of fats, protein, and carbohydrates, common dissociation residues or systems of residues may exist which throw these classes of substances into an actual state of organic chemical equilibrium with one another, a conception which bears directly on the nature of the correlation of the ductless glands and in a most tangible manner. This idea also bears on the question of how carbohydrates or fats suppress protein catabolism, etc.

Journal of Sociologic Medicine, Easton, Pa.

February, XVI, No. 1, pp. 1-64

81 Rigidity of Curriculum an Obstacle to Progress of Medical Education. C. McIntire, Easton.
82 How Foods and Drugs Can Menace. W. S. Hall, Chicago.
83 Home Surroundings. T. D. Davis, Pittsburgh.
84 Improper Recreations. S. C. Kingsley, Chicago.

Lancet-Clinic, Cincinnati

February 13, CXIII, No. 7, pp. 169-196

85 Prevalence of Typhoid in Sanitary Survey of Ohio River Cities. W. H. Frost, Cincinnati.
86 Roentgen-Ray Observations Concerning Gastrospasm and Gastric Atony. S. Lange, Cincinnati.
87 Blood Pressure Readings in Examinations for Life Insurance. J. W. Fisher, Milwaukee, Wis.
88 Series of Gastro-Intestinal Cases. C. P. Kennedy, Cincinnati.
89 Dangers and Fallacies of Intraspinous Injection of Salvarsan. W. Ravine, Cincinnati.

February 20, No. 8, pp. 197-224

90 Management of Hypertensive Cardiovascular Cases. R. H. Babcock, Chicago.
91 Experimental Study in Functional Diagnosis of Heart. C. S. Williamson, Chicago.
92 Intermittent Swelling of Salivary Glands. G. B. Rhodes, Cincinnati.
93 Dangers and Fallacies of Intraspinous Injection of Salvarsan. W. Ravine, Cincinnati.

Medical Record, New York

February 27, LXXXVII, No. 9, pp. 337-378

94 Mentally Defective as Cases in Courts of New York City. M. G. Schlapp and L. S. Hollingworth, New York.
95 Eschylus—Doctor's Study. W. B. Konkle, Montoursville, Pa.
96 What the General Practitioner Should Know About Therapy of Syphilis. A. Rostenberg, New York.
97 Unconscious Mental Phenomena. J. Inglis, Denver.
98 Neglected Field of Medical Culture. T. D. Crothers, Hartford, Conn.
99 Deafness Following Mumps: Report of Case. J. Weinstein, New York.
100 Transfusion of Blood by Gravitation Method. G. A. Rueck, New York.
101 New Incision for Varicocele Operation When Scrotum Is to Be Amputated. E. G. Ballenger and O. F. Elder, Atlanta, Ga.

Missouri State Medical Association Journal, St. Louis

February, XII, No. 2, pp. 45-90

102 *Thyroidectomy Under Local Anesthesia. A. E. Hertzler, Kansas City.
103 Pain and Its Significance. J. H. Elliott, West Plains.
104 Psychoses Associated with Tabes Dorsalis. F. M. Barnes, Jr., St. Louis.
105 Perversions of Consciousness in Mental Diseases. S. A. Johnson, Springfield.
106 Treatment of Neuralgia. G. W. Robinson, Kansas City.
107 Some Factors in Surgery of Stomach and Duodenum. J. G. Sheldon, Kansas City.
108 Squinting Child. W. F. Hardy, St. Louis.
109 *Differential Diagnosis of Tympanites and Pneumoperitonitis. W. W. Duke, Kansas City.
110 *Use of Raw Starch in Treatment of Diabetes Mellitus. E. B. Knerr, Kansas City.

102. **Thyroidectomy Under Local Anesthesia.**—The secret of success in thyroidectomy under local anesthesia, says Hertzler, is that the surgeon must not hurt the patient. The field must be completely anesthetized, and must be kept free from blood. The latter is impossible unless the former is realized because if the patient suffers pain the necessary delicacy in technic required to perform a bloodless operation is not possible. With all details mastered thyroidectomy under local anesthesia becomes an exceedingly satisfactory and simple operation. Hertzler details his method.

109. **Diagnosis of Tympanites and Pneumoperitonitis.**—The air, if not confined by peritoneal adhesions, rises to the highest point in the peritoneal cavity, the liver and spleen drop away from the abdominal wall and instead of flatness to percussion over the liver in the mamillary line there appears tympany. The finding of tympany in this location is often considered a characteristic sign of perforative peritonitis, but it is also generally admitted that it occurs frequently in tympanites. More reliable information can be obtained by percussion in the right midaxillary line at about the level of the eighth rib. Here liver flatness can be found in either tympanites or pneumoperitonitis so long as the patient lies on his back. If, however, the patient turns on the left side, Duke claims, an important differential point can be obtained. In case of pneumoperitonitis, the liver drops away from the chest wall unless bound to it by adhesions and the flat percussion note changes to one of tympany. In tympanites, the flat note persists.

A change from a flat note to a tympanitic note in tympanites could only occur as a result of a loop of intestine slipping in between the liver and chest wall. Duke has examined a number of cases of tympanites with this point in mind and in every instance liver flatness in the axillary line has not been modified by change of position.

110. **Raw Starch in Diabetes.**—Knerr's procedure is to put the patient to bed and allow him nothing whatever except a dram of raw cornstarch stirred in a glass of warm water every two hours. The result is most gratifying. Both sugar and acidosis decrease gradually. The raw starch serves two purposes: It supplies considerable nourishment and it prevents acidosis, so there is no danger of coma and no need of alkaline dosage, and the patient suffers none of the distress of the rigid starvation regime. All wines and some whiskies and brandies contain some sugar, so Knerr prefers pure alcohol if any is to be given at all. Its only advantage is to modify the taste of the raw beaten egg.

New York Medical Journal

February 27, CI, No. 9, pp. 385-436

111 *Nature and Pathogenesis of Epilepsy. L. P. Clark, New York.
112 Medical Treatment of Pituitary Disease. W. Reber, Philadelphia.
113 Chronic Interstitial Nephritis. W. H. Good, Philadelphia.
114 Treatment of Chronic Nephritis. F. J. Dever, Philadelphia.
115 Relationship and Value of Systolic, Diastolic and Pulse Pressures. F. A. Faught, Philadelphia.
116 Analysis of Narcotic Drug Addiction. E. S. Bishop, New York.
117 Narcotic Drug Addiction. G. E. Pettey, Memphis, Tenn.
118 Drug Habitués. S. Block, New York.
119 Double Mastoiditis with Septic Sinus Thrombosis. C. H. Smith, New York.
120 Catharsis After Operation for Appendicitis. L. B. Meyer, New York.

111. Abstracted in THE JOURNAL, Jan. 30, p. 464.

New York State Journal of Medicine

February, XV, No. 2, pp. 45-84

121 Recent Progress in Ophthalmology. E. S. Thomson, New York.
122 Present Status of Squint and Ocular Motor Imbalance. H. W. Wootton, New York.
123 Practical Vaccine Therapy. H. Greeley, Brooklyn.
124 Psychotherapy in Every-Day Practice. J. R. Wiseman, Syracuse.
125 Importance of Medical Supervision of Older Children. E. J. Wynkoop, Syracuse.
126 Surgical Treatment of Acute Osteomyelitis. W. L. Wallace, Syracuse.
127 Eiweiss Milk. D. P. Arnold, Buffalo.

Ohio State Medical Journal, Columbus

February, XI, No. 2, pp. 73-150

128 Congenital Cataract. C. F. Clark, Columbus.
129 Diagnosis and Prognosis in Gastric Ulcer. Clinical Study of Five Hundred Consecutive, Operatively Demonstrated Cases. F. Smithies, Chicago.
130 Extragenital Syphilitic Infections. M. L. Heidingsfeld, Cincinnati.
131 Therapeutic Abortion. Indications and Methods of Procedure. S. J. Goodman, Columbus.
132 Review of Progress of Genito-Urinary Surgery, During Year 1914. H. A. Baldwin, Columbus.

Texas State Journal of Medicine, Fort Worth

February, X, No. 10, pp. 395-442

133 Operative Reduction of Fractures Without Use of Buried Retention Material. H. B. Gessner, New Orleans.
134 Non-Operative Treatment of Fractures of Femur. C. C. Cody, Jr., Houston.
135 Operative Treatment of Fractures. C. C. Nash, Palestine.
136 Case of Fracture of Patella. S. C. Red, Houston.
137 Medical Side of Exophthalmic Goiter. R. W. Baird, Dallas.
138 Indications and Contra-Indications for Surgical Treatment of Goiter. A. C. Scott, Temple.
139 Cancer of Intestines. R. R. White, Temple.
140 Surgical Notes from Year's Service in Foreign Clinic. E. L. Gilcreest, Gainesville.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, London

January, VIII, No. 4, pp. 641-682

1 Blackwater Fever in Formosa. J. Hatori.
2 Splenomegaly: Report of a Hundred and Four Cases Met with in South China. G. D. Whyte.
3 Yaws in Ceylon. P. H. Bahr.

Brain, London

October, XXXVII, Part 2, pp. 199-340

4 Phenomenon of "Tonic Innervation" and Its Relation to Motor Apraxia. Report of Three Cases. S. A. K. Wilson and F. M. R. Walshe.
5 *Dyssynergia Cerebellaris Progressiva—Chronic Progressive Form of Cerebellar Tremor. J. R. Hunt.
6 *Physiologic Significance of Reflex Phenomena in Spastic Paralysis of Lower Limbs. F. M. R. Walshe.

5. **Chronic Progressive Form of Cerebellar Tremor.**—Three cases are cited by Hunt from an analysis of which he concludes that there exists a chronic progressive form of cerebellar tremor, the most striking and characteristic symptom of which is a generalized volitional tremor which begins locally and gradually progresses. In its advanced stage the disorder of motility is comparable in severity and violence with that of Huntington's chorea or the generalized athetosis. There is, however, this difference, that in a position of rest and muscular relaxation the tremor movements

cease. An analysis of the motor disorder show a marked disturbance of the ability properly to control and regulate coordinated movements. This is shown by the presence of hypermetria, dysmetria, adiadokokinesis, dyssynergia, hypotonia and intermittent asthenia. All of these symptoms, including the volitional tremor, coincide with the classical symptomatology, which results from a loss of the cerebellar control over voluntary movements. The disorder is, therefore, regarded as of cerebellar origin.

The local onset, gradual progression and chronic course indicate a progressive degeneration of certain special structures of the cerebellar mechanism presiding over the control and regulation of muscle movements. Other symptoms of cerebellar disease, such as disturbances of equilibrium, objective vertigo nystagmus, cerebellar fits and seizures are absent. For this chronic progressive disorder of the cerebellar mechanism the name *dyssynergia cerebellaris progressiva* is suggested as best indicating the essential element in the motor disturbance (dyssynergia), its progressive tendency and relation to the cerebellum. The chronic progressive cerebellar tremor is, however, equally descriptive and may be found preferable.

6. **Reflex Phenomena in Paralysis of Lower Limbs.**—The reflex movements of the lower limbs in spastic paralysis, Walshe states, are almost entirely movements of flexion of the limb. The "receptive field" of this reflex commonly includes the whole limb, skin and deep structures, except for a small portion of the proximal part. The reflex is not purely cutaneous. The form of stimulus most effective is that having a noxious or harmful character, but light painless stimuli applied to the distal extremity of the limb, the sole, suffice to induce the reflex. The muscles actuated are the flexors and dorsiflexors of the limb, and the reflex response is a simple movement of flexion at all the points. Of this reflex flexion, dorsiflexion of the hallux is an integral and inseparable part, and this constitutes the "extensor" type of plantar response, the Babinski toe phenomenon. The physiologic significance of the flexion reflex is that of a defensive reflex, and it has no relation to "spinal stepping."

Concurrently with contraction of the limb flexors in this reflex, is inhibition of their antagonists, and all the phenomena of "reciprocal innervation" are seen in the reflex. Accessory to this reflex is reflex extension of the crossed limb. This includes plantar flexion of foot and toes, "the crossed plantar reflex" of many authors. The study of spastic paralysis of the lower limbs, from the point of view of reflex movement, confirms the existence of two clinical types. The reflex activity of the extensor and flexor groups of muscles is of specific type in each case. The extensors show a maintained tonic reflex—the spasticity of the extended leg. This may be called a static reflex. The flexors show, characteristically, reflex action of phasic type, which gives rise to reflex movements. In a cerebral lesion or in a purely pyramidal tract affection, however complete, there is constantly the extended type of spastic paralysis in the legs.

The condition of paraplegia in flexion is an example of unantagonized flexor reflex action, and it shows intermission, due to the phasic nature of this, until permanent contracture ensues. In complete spinal transection, physiologic or anatomic, the reflex activity of the limb is almost completely absent; but a minimal flexion reflex persists on stimulation of the sole, and thus affords further evidence of the purely spinal nature of this reflex. The extensors show no reflex activity in these cases. The condition of flaccid paralysis of the limbs in complete lesions of the spinal cord differs, therefore, in degree only from that of paraplegia in flexion, which Walshe concludes is analogous to the condition of the hind limbs of the "spinal animal." In complete spinal lesion the phenomena of "spinal shock" and "isolation dystrophy" mask and finally abolish the reflex activity of the flexors. It is seen from this that there is a doubt system of motor innervation of the lower limbs, such as was first suggested by Jackson and verified experimentally in animals by Sherrington. An analysis of the phenomenon of spastic paralysis of the limb extensors in man demonstrates the close analogy existing between the physiologic principles of motor innervation in animals and in man.

British Medical Journal, London

February 13, I, No. 2824, pp. 277-320

7 William Hunter and His Work in Midwifery. H. R. Andrews.
8 Case of Ménière's Disease. R. M. Simon.
9 Certification Under Mental Deficiency Act. W. A. Potts.
10 Insects and War: Mosquito. A. E. Shipley.
11 Surgical Experiences at Anglo-American Hospital, Wimereux, France. H. Lett and J. H. Morris-Jones.
12 Treatment of Cerebrospinal Meningitis by Antimeningococcus Serum Combined with Autogenous Vaccine. J. R. Collins.
13 Cases of Hip Dislocation and Spinal Cases Treated by Rib Transplantation. W. I. de C. Wheeler.

Edinburgh Medical Journal

February, XIV, No. 2, pp. 81-160

14 Relations of Inner Surface of Cranium to Cranial Aspect of Brain. J. Symington.
15 *Value of Emulsions of Liquid Paraffin and Castor-Oil in Treatment of Certain Types of Chronic Dyspepsia in Childhood. C. M'Neil.
16 Case of Tuberculosis of Bronchial and Mesenteric Glands, Followed by General Tuberculosis. J. L. Smith.

15. **Value of Liquid Paraffin and Castor Oil in Treatment of Dyspepsia.**—Emulsions of liquid paraffin or of castor oil (in small non-purgative doses) M'Neil has found to be of great value in the treatment of various and apparently distinct types of chronic dyspepsia in childhood. The types dealt with are: (*a*) Malnutrition, frequently associated with chronic diarrhea, and only seldom with constipation. (*b*) Enuresis, with dyspeptic symptoms. (*c*) Recurrent vomiting (cyclical or bilious vomiting). (*d*) Recurrent attacks of fainting or sudden pallor. (*e*) Urticaria or eczema, with dyspeptic symptoms. In a great majority of these diverse types of illness there is an abnormal condition of the stools; this may often be a true diarrhea, but not seldom also merely a too soft consistence of the stool with or without the presence of mucus. In the series constipation was present in only a small majority. A large number of these cases have followed the common infectious fevers of childhood, especially measles and whooping-cough. These post-infection cases of dyspepsia seem to M'Neil particularly amenable to this form of treatment. In a series of 13 completed cases of enuresis, 8 were cured and 3 greatly benefited by this treatment. The action of liquid paraffin and castor oil used as described is similar. It is entirely local, and confined to the mucous membranes of the alimentary tract. The action is most probably a sedative one, exerted on the congested and unhealthy mucous lining of the small and large intestines.

Glasgow Medical Journal

February, LXXXIII, No. 2, pp. 81-159

17 Leper Houses and Medieval Hospitals. C. A. Mercier.
18 Types of Bullet Wounds Observed in No. 3 Scottish General Hospital, Stobhill. A. MacLennan.
19 Case of Gastric Cancer with Bone Marrow Metastases and Anemia. A. W. Harrington and J. H. Teacher.

Journal of Laryngology, Rhinology and Otology, London

September, XXIX, No. 9, pp. 449-480

20 *Oculomotor Paralysis of Otitic Origin. F. H. Westmacott.

October, No. 10, pp. 481-512

21 *Diathermy in Treatment of Inoperable Growths of Nose and Throat. W. D. Harmer.
22 *Treatment of Inoperable Growths of Nose and Throat by Radium. W. Hill.
23 Treatment of Inoperable Cases by Means of Roentgen Rays. J. MacIntyre.

November, No. 11, pp. 513-544

24 Clinical Aspect of Otosclerosis. G. Walker and J. S. Fraser.
25 Treatment of Otosclerosis. G. J. Jenkins.
26 * Auditory Reeducation. F. F. Muecke.

December, No. 12, pp. 545-618

27 Minimizing of Hemorrhage in Extirpation of Tonsils and on Employment of Hemostatic Guillotine. W. Hill and G. J. F. Elphick.
28 Difficulties and Dangers of Exploratory Puncture of Antrum of Highmore. A. B. Kelly.

January, XXX, No. 1, pp. 1-56

29 Diagnosis and Treatment of Abscess of Cerebellum with Record of Cases Subjected to Operation. W. Milligan.
30 Latent Empyemata of Nasal Accessory Sinuses. O. S. Gogarty.
31 Otogenic Pharyngeal Abscess. D. McKenzie.

February, No. 2, pp. 57-88

32 *Perez Bacillus and Alleged Relationship of Ozena to Certain Condition in Dog, and More Especially to Distemper. J. P. McGowan.
33 Case of Tracheal Tumor. J. Adam.

20. **Oculomotor Paralysis of Otitic Origin.**—Interference with the function of the third cranial nerve, Westmacott says, may occur in one of three parts, according to the symptoms produced. First, in the nuclei of origin in the grey column in front of the aqueductus cerebri and the corpora quadrigemina, together with the supranuclear portion. Secondly, in that portion which extends from the point of exit of the united bundle of fibers on the medial side of the cerebral peduncle, just in front of the pons, passing forward between the posterior cerebral and superior cerebellar arteries to pierce the dura mater beside the posterior clinoid process, in the small triangular space between the free and attached borders of the tentorium cerebelli. Beneath the dura mater the nerve courses through the lateral wall of the cavernous sinus until it enters the orbit through the superior orbital fissure. Thirdly, from its entrance into the supra-orbital fissure and orbit, in cases in which it divides, to the terminations of its distribution. It is considered, however, that all lesions below the nuclei are peripheral, all above are cerebral. When paralysis exists with an ipsolateral otorrhea, accompanied by headache and vomiting, the author urges that an exploration of the auditory apparatus should be at once undertaken to determine the extent and limits of the disease, while at the same time it should be borne in mind that the examination of the nasal fossa and accessory cavities may reveal the focus of disease, in so much as nasal disease infection is far more common than aural infection in the production of paralysis of the oculo-orbital nerves.

21. **Diathermy in Treatment of Inoperable Growths of Nose and Throat.**—Harmer is of the opinion that diathermy is a method of dealing with growths which is worth the consideration of every surgeon in charge of a department for diseases of the nose and throat. The results of treatment of cancer of the mouth have been very encouraging.

22. **Treatment of Inoperable Growths of Nose and Throat by Radium.**—Hill's experiences with radium in epithelioma are on the whole sufficiently encouraging to lead him to assert that radium therapy is worth trying in epithelioma of the throat. Diathermy, however, has a much wider field of application than radium in these areas, and should be the palliative method of choice in most cases, though radium may usefully be employed as an adjunct. In the esophagus the converse is the case.

26. **Auditory Reeducation.**—The result of Muecke's experience with reeducation has not been satisfactory. He states emphatically that no patient should attempt this treatment until a reputable aurist has either ordered it or found further orthodox treatment useless—for although the treatment can do no direct harm, it may do indirect harm by postponing the removal of the cause of the deafness.

32. **Perez Bacillus and Relationship of Ozena to Condition in Dog.**—McGowan suggests that before it is definitely accepted that ozena is a disease of dogs capable of being transmitted to man, the questions arising out of the resemblance of Perez's organism and the organism of distemper should be further investigated. The author says that in a hurried examination the distemper organism could be mistaken for the organism described by Perez as the cause of ozena. It is only after the growth characteristics of these organisms have been tested in a number of special medium that they are seen to be different organisms in reality. Thus, Perez's organism resembles the organism of distemper in being a Gram-negative cocco-bacillus; Perez's organism is always non-motile, while the distemper organism, usually motile, at some stages of its cultivation may be non-motile; on potato, Perez's organism gives a flat, greyish-yellow slightly moist growth, which might in a hurried examination, be mistaken for the altogether different and distinctive raised, copper-brown, succulent growth of the distemper organism; in litmus milk, Perez's organism gives a doubtful alkaline reaction, which could under certain circumstances, but not in a thorough comparison, be mistaken for the marked alkaline reaction with white deposit of the distemper bacillus. The growths of the two organisms on gelatine, peptone water, and broth are much alike with this exception, that while Perez's organism may produce some indol, the distemper organism produces none. On agar, in tubes inoculated heavily, the appearance of both organisms is much the same; but in cases in which the tubes are lightly inoculated so that only discrete colonies appear, the mode and rate of growth and the characteristic appearance of the distemper organism colonies can hardly be mistaken for those of the Perez's organism. On glycerin agar, the naked-eye appearances of the growths are much the same, but microscopically, while the distemper bacillus undergoes a marked change in size and shape, no such change is observable in Perez's organism. On a large number of the sugars, the reaction of the two organisms is the same, but whereas Perez's organism produces acid in glucose and a doubtful acid reaction in galactose, the distemper organism produces no change in these sugars. Another very noticeable distinction between these two organisms is their reaction in a lactose medium containing neutral red—for, while Perez's organism produces a very marked fluorescence, the distemper organism produces none.

Lancet, London

February 13, I, No. 4772, pp. 309-358

34 Puerperal Eclampsia. C. E. Purslow.
35 *Experimental Purpura. J. C. G. Ledingham and S. P. Bedson.
36 Study of Shell Shock. C. S. Myers.
37 Pseudolevulose of Diabetic and Other Urines. P. J. Cammidge and H. A. H. Howard.
38 *Death from Strangulated Internal Hemorrhoids. P. Lockhart-Mummery and M. K. Joshi.
39 Treatment of Gunshot Wounds of Femur. C. Wallace.
40 Typhoid and Paratyphoid Infection in Relation to Antityphoid Inoculation. G. Dreyer, E. W. A. Walker and A. G. Gibson.

35. **Experimental Purpura.**—Data are recorded by Ledingham and Bedson on the blood changes in guinea pigs after inoculation with anti-guinea-pig-plate serum. An early fall in the number of platelets simultaneously with the outburst of skin purpura is found to be a marked feature. Purpura has also been produced in rabbits and rats by inoculation with the respective antiplate serum. The blood changes in rabbits have been followed with results similar to those obtained in guinea pigs. The authors found that antiplate serum, in addition to its purpura producing properties, possesses in common with other cytolytic serum considerable lytic powers, which in all probability contribute largely toward the fatal issue in small animals. Death, however, may occur as the result of extensive hemorrhages alone without any obvious lytic changes as evidenced by hemoglobinuria. Serum obtained by immunization with red cells or leukocytes did not produce purpura. Purpura was not produced by inoculating animals with heterologous antiplate serum.

38. **Death from Strangulated Internal Hemorrhoids.**—The authors report the case of a patient who died apparently from septicemia, the results of extensive gangrene of the rectum and neighboring tissue, as the direct result of thrombosed internal piles. They are of the opinion that the condition was rendered possible by the secondary anemia from which the patient was suffering.

Archives des Maladies du Cœur, etc., Paris

January-February, VIII, Nos. 1-2, pp. 1-44

41 Differential Leukocyte Count in Mumps. (Formule leucocytaire dans les oreillons.) C. Aubertin and H. Chabanier.

Archives Mens. d'Obst. et de Gynécologie, Paris

October, III, No. 10, pp. 145-192

42 Fibroma of Broad Ligament; Two Cases. M. Haller.

Bulletin de l'Académie de Médecine, Paris

January 26, LXXIII, No. 4, pp. 125-152

43 Coating the Feet Thick with Grease Wards off Freezing. (Emploi des corps gras pour éviter les gelures.) A. Piedallu.
44 Extraction through Urethra of Bullet in Bladder. G. Luys.

45 Notes of an Ophthalmologist two Months a Prisoner of War in Germany. (De la recherche méthodique et de la correction des vices de refraction dans l'armée allemande. Résultats obtenus dans le recrutement et l'amélioration des contingents armés par les services spéciaux d'ophthalmologie.) G. Bonnefon.
46 Tetanus; Twenty-One Cases. P.-R. Joly.

February 2, No. 5, pp. 153-168

47 Injuries Ascribed to Freezing Due Mainly to Impeded Circulation. (Les pieds gelés dans l'armée.) Temoin.
48 Wounds of the Nerves in War. (Traitement des blessures des nerfs par projectiles.) S. Pozzi. (Section complète du nerf médian par un projectile, suture nerveuse, restauration de la fonction le 4e jour.) S. Mercadé.
49 Streptothricosis Involving the Bronchi; Recovery. (Contribution à l'étude des oosporoses.) A. Sartory and P. Lasseur.

Lyon Chirurgical

August, XII, No. 2, pp. 101-228

50 *Tuberculosis of a Horseshoe Kidney. (Tuberculose du rein en fer à cheval.) V. Rochet and L. Thévenot.
51 *Pyelography in Diagnosis of Kidney Disease and Movable Kidney. G. Gayet and J. De Beaujeu.
52 Multiple Bony Exostoses with Arrest of Development and Deformity of the Skeleton. A. Rendu and P. Lévy.
53 Systematic Median Subumbilical Laparotomy in Treatment of Strangulated Inguinal Hernia in the Elderly. R. Leriche.

50. Tuberculosis of Horseshoe Kidney.—Single kidney is an anomaly that occurs frequently enough to be of considerable importance in pathology. Botez found it once in 715 necropsies and once in 143 operative cases. Rochet and Thévenot have collected from the literature ten cases of tuberculosis in a horseshoe kidney, brief abstracts of which are given, and they add a detailed history of one case of their own. In such cases a diagnosis must first be made of renal tuberculosis; they review the various methods of functional examination of the kidneys for this purpose; in the second place the existence of a horseshoe kidney must be esablished. The ureteral orifices appear at the normal location and nothing in the cystoscopic examination reveals the anomaly. Careful palpation will reveal a median transverse mass, with two lateral lobes situated lower down and nearer the median line than the normal kidneys. If the two ureters are catheterized with opaque catheters and collargol is injected into the pelves, the ureters and pelves will be found much nearer the median line than normal.

Fortunately, the tuberculosis is usually unilateral, and the two lobes function independently, so that removal of one lobe has the effect of a total, not a partial nephrectomy; the fatal effects of the latter are well known. The functional sufficiency of the remaining lobe must of course be demonstrated. In seven of the cases, resection of one lobe had been performed, in five with complete success. Median laparotomy is preferable to the lumbar incision, because it brings into view the vascular pedicles of the kidney; in addition to those for each lobe there is usually a median one for the isthmus, made up of two short arteries from the aorta or the mesenteric arteries. It is easy to avoid these in the abdominal operation. The isthmus is sometimes adherent and great care must be exercised in freeing it. If these precautions are taken, the operation is not more difficult than an ordinary nephrectomy. In only one case was the operation followed by a urinary fistula.

51. Pyelography.—Gayet and de Beaujeu review the history of the development of pyelography and discuss the bad effects that some surgeons have had with it, such as pain, fever, renal colic and, most serious of all, penetration of the collargol into the kidney parenchyma. The latter they believe is due to injecting the collargol under too great pressure; they no longer use a syringe, but let the fluid flow in under atmospheric pressure, without raising the receptacle too high, and they have no such complications. General intoxication from the silver salt, which has been reported by a few authors, they do not believe occurs. They give a detailed description of the technic, both for injecting the collargol and taking the Roentgen picture, giving eighteen roentgenograms and seventeen case histories, illustrating the different conditions in which they have made use of the procedure. Thus far they have used it mainly in suppurative pyelonephritis, to determine the degree of dilatation and retention and also for the antiseptic action of the collargol, which they find is very powerful; also in cases of difficult diagnosis of tumor, to locate the kidney and find whether the tumor really belongs to the kidney; and also with movable kidney.

Movable kidney is one of the most disputed fields in kidney pathology. Many clinicians oppose operation, because there are so many cases in which it is neither necessary nor effective. But the fact remains that there are cases that require operation, and it is in distinguishing these that pyelography is so valuable. The examination should always be made first in the reclining and then in the standing position; in this way the degree of excursion of the kidney can be determined. It will often be found that when the patient stands the kidney sinks down into the pelvis. This creates hydraulic conditions that make it very difficult for the urine to be discharged. These slight degrees of hydronephrosis are frequent, and early operation overcomes them. Pyelography not only shows whether an operation is necessary, but also what form of operation is best adapted to the case; ureteropyelostomy may be necessary, or simple fixation in the correct position may suffice. If a previous nephropexy has fixed the kidney in a poor position, pyelography will disclose the fact. Pyelography should be performed with all the care that would be given to any other operation. When so performed, and applied judiciously, it will be of the greatest service in urinary surgery. A bibliography of forty-eight titles follows the article.

Lyon Médical

XLVI, Nos. 32-35, pp. 221-260. Last indexed Sept. 19, 1914

54 Concretions in the Lungs. A. Cade and J. Guérin.
55 Improved Technic for Making Artificial Nose. A. Pont.

Nos. 36-41, pp. 261-312

56 Perforating Ulcer of the Duodenum; Seven Cases. Lagoutte.

Nos. 42-48, pp. 313-384

57 *Hematein Bedside Color Test for Occult Blood. (Nouveau procédé de recherche du sang en clinique.) H. Couturier.

Nos. 49-52, pp. 385-416

58 The Therapeutic Action of the Mineral Mud of the Black Sea Region. (Les limans de la région de la Mer Noire.) E. and Mme. E. Barral.

57. Improved Technic for Test for Occult Blood.—Couturier has been using hematein for this purpose. It is only slightly soluble in water, but nevertheless it gives it a pronounced red color. In contact with sodium hydroxid this red solution turns a deep violet blue, giving an insoluble compound of hematein and sodium. This compound, exposed to the air, oxidizes after several days, and gives brownish or yellow compounds, depending on the dilution. This change is only hastened a little by the addition of hydrogen peroxid, but if a trace of blood is added to the hydrogen peroxid it takes place almost instantaneously. To avoid its oxidizing, the hematein sodium mixture should be prepared just before using. Three fluids are required: the 0.05 per cent. aqueous solution of hematein; 40 per cent. sodium hydroxid, and hydrogen peroxid, 12 volumes. These will keep almost indefinitely. In addition to the 4 or 5 c.c. of the specimen fluid to be examined, there should always be a control solution of the same material but known not to contain blood. Add to each of the two tubes 4 to 5 c.c. of the sodium hydroxid and shake. Then add to each tube two drops of the solution of hematein. A deep blue color will be observed, about equal in the two tubes. Then add ten drops of hydrogen peroxid and compare. If blood is present the tube containing it will turn very rapidly in three or four seconds, to violet red, then in twenty seconds to clear brown, and in forty seconds to pale yellow, while the control tube will not show these changes for several minutes. The reaction can be used practically with amounts of blood as low as 1:400,000. A table is given showing the results in different materials, such as urine, sputum, fecal matter and cerebrospinal fluid obtained by puncture. The results agreed with those shown by the microscope in all but one case, and in this the microscopic examination was shown to be wrong, because of the difficulty of recognizing blood cells that had been digested. There are a number of substances, such as nitric acid, that change the reaction, but none that give the characteristic blood reaction. Couturier has been using the reaction for four years with constant satisfaction. It can readily be used

at the bedside and it is reliable. The solutions are not durable, he says, in the usual tests for occult blood, while the technic is more complicated than his hematein method.

Revue Médicale de la Suisse Romande, Geneva

January, XXXV, No. 1, pp. 5-56

59 Pharmacologic Action of Allyl Morphin. A. Mayor and B. Wiki.
60 *Gastro-Intestinal Disturbances in the Tuberculous from Insufficiency of the Abdominal Muscles. Tecon.
61 Treatment of Pneumonia. E. L. Du Pan.
62 Treatment of Gas Gangrene. A. Van Emden.

60. **Necessity for Strengthening Abdominal Walls in the Tuberculous.**—Tecon is convinced that many of the gastro-intestinal disturbances in the tuberculous are the result of conditions caused by the weakening and sagging of the abdominal walls under toxic influences. He has been much impressed by the improvement that followed systematic exercise of the abdominal muscles to restore tone in them. The prolonged reclining, forced feeding, coughing, drugging, worry and depression and the elimination of toxins through the mucosa of stomach and bowels amply explain the tendency to atrophy of the muscles. The exercises, and chiefly those of the abdominal walls he has found most effectual for overcoming it, without injury elsewhere, are to have the patient recline and raise himself to a sitting posture and bend the trunk forward, the arms extended, and the feet held firm under some piece of furniture. Carnot and Glenard published last year a study of the intragastric pressure during this exercise. It averaged 10 cm. water, reclining; rose to 35 during the effort of raising the trunk, became 15 as the trunk was held upright and increased to 23 as it was bent forward. Tecon has this exercise done slowly and moderately five times before breakfast. After a few weeks of training it is done up to fifteen times. He gives the details of five cases to show the prompt improvement in stomach and bowel functioning when the abdominal muscles regained tone under these exercises.

Archiv für klinische Chirurgie, Berlin

CVI, No. 2, pp. 251-433. Last indexed January 16, p. 279

63 *Spring Spreaders in Treatment of Abscesses. (Behandlung von Abscessen mit Spreizfedern.) M. Tiegel.
64 Experimental Autoplastic Transplantation of Bone Marrow. (Knochenmarkstransplantation.) K. Miyauchi.
65 *Autoplastic Methods for Arresting Hemorrhage, and Aseptic Thrombosis. J. Philipowicz.
66 *The History of the Saw in Surgery. (Die chirurgische Säge.) E. Holländer.
67 Tetany and Trauma of Bone. (Tetanie und Knochentrauma.) N. Guleke.
68 *Thyroid Transplantation in the Bone Marrow. (Schilddrüsentransplantation in das Knochenmark.) N. Guleke.
69 *Inflammation Tumors in the Omentum. (Entzündliche Geschwülste des Netzes.) L. Peterhanwahr.
70 *Contradictory Incontinence with Bladder Tumors. (Ueber Incontinentia urinae paradoxa bei gewissen Harnblasentumoren, speciell mit Rücksicht auf die Indikationsstellung für Prostatektomie.) A. Troell.
71 The Ureter in the Newly Born. (Zur Hydronephrosenfrage.) C. Posner.
72 Experimental Plastic Operations and Transplantation of Nerve and Muscle Tissues. P. Erlacher.
73 Suture and Transplantation of Tendons. (Sehnensutur und Sehnentransplantation.) J. Jensen and C. D. Bartels.

63. **Spring Spreaders for Abscesses.**—Tiegel has a set of the spring spreaders shown in the illustrations, different sizes being adapted for different forms of subcutaneous suppuration. They ensure the evacuation of the secretions in a way never realized before, he says. The surrounding inflammation rapidly subsides while the abscess itself promptly heals with the minimum of destruction of tissues. The incision is made at the lowest point to facilitate draining. The spreader is introduced at once, still under the anesthetic

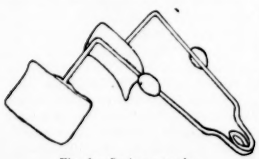


Fig. 1.—Spring spreader.

used for the incision; the complete escape of the pus puts an end to the pain from pressure. Abscesses in the hand, neck, axilla and inguinal region are the best adapted for the use of the spreader. Even when the location of the abscess does not permit complete evacuation by this means, for example, with suppurating mastitis, yet the spreader, by rendering tamponing unnecessary saves much pain. There is so much less destruction of tissue when the spreader is used, that the lesion heals with not much more than a linear scar and with the minimum of deformity. Eleven typical cases are described in detail with illustrations showing the fine functional outcome. In one case all the tendon sheaths of the hand and wrist had been involved in the suppuration and had been incised, and yet there was no necrosis of any of the tendons and the functional use of the hand is practically normal.

Fig. 2.—Spreader in place.

65. **Autoplastic Hemostasis.**—Philipowicz declares that this autoplastic method has never failed to arrest hemorrhage, either in the clinic or in experiments, when properly done. By this he means that the flap was cut of the proper shape and of sufficient size, and that it was fitted to the bleeding surface and pressed against it with the fingers until blood no longer oozed from the bleeding surface. This usually takes about a minute and a half. Omentum and fat tissue can be used for the purpose in the abdomen, fat tissue for the kidney, and muscle tissue for the brain, spinal cord and in the thorax. This technic is particularly advantageous in case of hemorrhage from the spleen or kidneys. As soon as the hemorrhage is arrested the living flap sticks to the bleeding surface without necessity for suturing, and it fits into all recesses, and there is no further tendency to bleed. The autoflap also protects against development of adhesions.

66. **History of the Surgical Saw.**—Holländer gives illustrations of ancient saws and trephining instruments from the stone age down. A number of the saws dating from the bronze age were found in company with surgical instruments so they probably had been used at operations.

68. **Thyroid Transplants in the Bone Marrow.**—Guleke reports extensive research on dogs which has demonstrated that trauma affecting the bone has no influence on the appearance or course of tetany following loss of the parathyroids. In his experiments with thyroid tissue implanted in the tibia, the implant was destroyed or eventually absorbed in all but one of the animals. In this dog the implant seemed of normal aspect even under the microscope six weeks after the operation.

69. **Inflammation Tumors of the Omentum.**—Peterhanwahr has compiled 44 cases; in all but 8 cases there had been an abdominal operation from five days to three years before. Silk threads and even catgut seemed to have been a factor in some cases; in others the omentum had been ligated at a point where the tissues were not normal. The diagnosis in postoperative cases is simple, but it may prove difficult in the insidiously developing tumors of the kind secondary to disease in some adjacent organ. Szerszinski described in 1909 a case in which a simple appendectomy was followed by postoperative inflammation of the omentum, with fever and suppuration dragging along for months. The patient was cured finally after varied operative measures.

Peterhanwahr has encountered a typical case of postoperative inflammation of the omentum in a pregnant woman of 34, with active pulmonary tuberculosis, three weeks after an operation on an inguinal hernia. It developed with pains on

the left side of the abdomen, above the umbilicus and a tumor became evident, finally filling almost the entire left abdomen, an inflammatory hyperplastic proliferation of connective tissue with multiple small pus pockets. The transverse colon was embedded in the tumor and the whole mass was cut out after ligation of the gastrocolic ligament. The uterus was emptied at a later operation as the pressure from the enlarging uterus prevented the healing of the fecal fistula above. After this the woman rapidly recovered. In another case the omentum became inflamed secondary to gall-bladder trouble. The omentum tumor was partially resected, the gall-stones removed and the woman was at once relieved from all disturbances. Surgical measures are seldom necessary for inflammatory tumefaction in the omentum. It subsides spontaneously, as a rule, under bed rest, moist heat and inunctions with a potassium iodid or mercury salve. If suppuration is evident, the pus can be easily removed by an incision as at this stage the tumor is generally adherent to the abdominal wall. If adhesions prevent total excision of the tumor partial resections at various points will answer the purpose.

70. **Contradictory Incontinence of Urine.**—Troell reports three cases of tumor in the bladder in which urine dribbled during the day and night while the patient was awake but not a drop was lost during sleep. This paradoxical incontinence was associated with symptoms indicating a tumor in the bladder and it was cured by removal of the tumor or enlarged prostate. This paradoxical ischuria had lasted one, four and two years in the three cases and there had never been total retention at any time. All were completely cured by the operation.

Berliner klinische Wochenschrift

February 8, LII, No. 6, pp. 121-144

74 *Behring's Antitetanus Serum. (Mein Tetanusimmunserum.) E. v. Behring.
75 *Prophylaxis of Tetanus. C. Ritter.
76 *Experimental Research on Intermittent Electric or Mechanical Stimulation of Organs and Nerves over Prolonged Periods. C. Hammesfahr.
77 Importance of Cholesterin for Development of Giant-Cell Tumors in Tendons and Joints. S. Weil.
78 *Pressure on the Abdomen in Artificial Respiration. (Zur Frage der künstlichen Atmung.) E. Aron.

74. **Behring's Antitetanus Serum.**—Behring states that provisions have been made so that 100,000 prophylactic doses of 20 units each are now available each month. He advises a dose of 3½ c.c. of the six-fold immune serum. The French standard dose is equivalent only to 2 c.c. of the six-fold serum. He says that he has succeeded in removing from the immune serum, both for tetanus and diphtheria, that element in the protein content which enters the serum when the blood platelets are dissolved.

He explains a method with which it is possible to compute the total amount of blood. This is done by injecting a given number of antitetanus serum units directly into the blood and then, ten to fifteen minutes later, determining the proportion of antitoxin units contained in 1 c.c. of blood. For example, if 14 units are injected and if 1 c.c. of the blood drawn by venesection soon after contains 1/400 unit, then he estimates that the total amount of blood in circulation is 400 x 14, namely, 5,600 c.c. He quotes several research workers who have applied this method for estimating the total amount of blood in a total of 123 persons tested. Kammerer hails this as the simplest and most reliable method at our disposal for the purpose. The average in health was found by this method to be 9.8 per cent. of the body-weight. Vierordt computed it by other means at 7.7 per cent. or one-thirteenth of the body-weight. Behring tests the antitoxin content of the serum by its power to neutralize tetanus toxin when injected subcutaneously into mice. The intravascular injection of the antitetanus serum in this way for the test was never followed by any signs of harm in the 123 cases.

75. **Prophylaxis of Tetanus.**—Ritter quotes some recent statistics which show that of the 60,000 wounded in Bavaria up to the time of writing, 0.7 per cent. had died and 0.4 per cent. from tetanus. The experiences with various forms of treatment of tetanus have all been disappointing; the reports in regard to magnesium sulphate are much less favorable now than at first. Even prophylactic injections are not always able to ward off the disease. Consequently we must attack the wound more vigorously from the start. Friedrich makes a practice of excising the wound all around for 1 cm. into sound tissue, both at the surface and in the depths. This method is the ideal, Ritter declares, but it is not always applicable. Another method is to apply hyperemia according to Bier's stasis technic. This washes out the wound from within on account of the higher blood pressure in the tied-off limb. He urges a trial of this measure on a large scale. Copious application of Peruvian balsam or its equivalent checks the production of hard crusts behind which the secretions can accumulate. Painting with tincture of iodin is a step in the right direction, he reiterates, but it does not go far enough.

76. **Electric or Mechanical Stimulation of Organs and Nerves.**—Hammesfahr's method is based on the principle that when electricity is applied to any surface it follows the route of least resistance. He introduces a wire into the animal's body, the outer end terminating in a button under the skin. The procedure is easy and the wire heals promptly in place and does not trouble the dog. The wire can be thus passed around a nerve, without injuring it, or a metal cuff can be drawn around the pylorus or other organ. The positive electrode is fastened with plaster just over the button under the skin. A number of illustrations are given showing the details of the technic and the response to electric stimulation of the gall-bladder, etc. Other experiments were made with a magnet after incorporation of iron filings. The animals keep healthy and the experiments can be continued indefinitely.

78. **Artificial Respiration.**—Aron declares that his experiments on rabbits have shown that pressure on the abdomen is far more effectual in promoting expiration than pressure on the thorax. He thinks that artificial respiration should be managed so that the expiration movement should be enhanced by pressure on the abdomen. The only way, he adds, to determine the question is by experiments on an unconscious human being; in the conscious, it would be impossible to realize such relaxation as would permit an accurate judgment as to the value of compression of the abdomen instead of the thorax where compression is hampered by the ribs.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 2, XLV, No. 1, pp. 1-32

79 *Senile Psychoses. Bleuler.
80 Experiences in a German Base Hospital. G. Hotz.

January 9, No. 2, pp. 33-64

81 Drugs to Influence Parturition; Oxytocics. (Ueber Wehenmittel.) H. Guggisberg.
82 Abnormal Position of Fetal Head in Primiparae at Term. (Zur Bewertung des Kopfhochstandes vor der Geburt bei Erstgebärenden.) A. Nordmann.

January 16, No. 3, pp. 65-96

83 *The Nature of Anesthesia from Magnesium. (Wesen der Magnesium-Narkose.) M. Cloetta.
84 *Hereditary Relations between Alcoholism and Epilepsy. J. Stuchlik.

January 23, No. 4, pp. 97-128

85 Roentgen Diagnosis of Gastric Cancer. (Magenkarzinom.) E. Stierlin. Concluded in No. 5.
86 Perforation of Nasal Septum. (Nasenscheidewandperforationen.) F. Diebold.

January 30, No. 5, pp. 129-160

87 *The Physician's Task after Catastrophes. (Ueber Katastrophenmedizin.) H. Zangger. Concluded in No. 6.

79. **Senile Psychoses.**—Bleuler gives an outline sketch of the various senile psychoses as the last fifteen years have classified them by the organic findings. The association of ideas suffers particularly in the organic forms; in progressive paralysis or actual senile degeneration the drawbacks of business undertakings are not taken into account, and the man is liable to do extremely foolish things as he sees only the chances for success. On the other hand, the man with temporary melancholia or morbid worry sees only the chances for failure. With this defect in association of ideas

a man is liable to jump off a bridge after his hat, if it has blown into the water, or jump off a high porch after his cigar if he happens to drop it. This defect in association, and not a perverted moral sense, is the probable explanation of the sexual crimes of the senile. They see in a little girl merely the female, and if it is possible to make clear to them the extent of their crime, they feel normal horror and remorse if they had formerly been men of character.

The instability of the emotions causes the senile to be exceptionally swayed by suggestion. One who knows how to manage suggestion can do as he will with the senile, while under other circumstances they are extremely obstinate and perverse. The way in which the senile forget recent events and recall those farther back sometimes permits a date of demarcation showing exactly when the mental trouble began. With organic disease the sleep is usually disturbed; such persons may be able to sleep in the daytime while they are restless and excited at night.

As we do not know the causes we can not do much in prophylaxis or treatment of senile psychoses. It is wise, however, for the patient to avoid alcohol and tobacco, as there seems to be a connection between tobacco and arteriosclerosis. When the psychosis has developed the physician should see to it that the patient does not lose his property by foolish business ventures, etc. A carefully written out report at the time of the findings in the case may prove of valuable assistance in combating an unjust will. On the other hand, the physician's testimony after an attack of apoplexy may prove valuable evidence as to the unimpaired mind when the layman thinks that the aphasia, etc., testify to mental confusion.

Physical and psychic treatment of arteriosclerosis psychoses may be of great benefit, especially in the early stages. Measures that make much demand on the patient should be avoided and the patient should be guarded against mental and physical effort beyond what he can stand. Complete repose is inadvisable; we must cautiously ascertain the limits in each case. Tonics for the heart may be useful, supplemented by opiates if there is much dread. Potassium iodid, 5 parts, with potassium bromid, 20 parts, in 300 parts water; a tablespoonful three times a day in a glass of water, is often of decided benefit. Large intake of fluids, especially alcoholic, should be avoided, but the main point is to influence the patient's mind, comforting and tranquillizing him; the symptoms grow milder and rarer as the patient is brought to pay less attention to them. It is a great blessing if he can work and thus be diverted. Work, therefore, should never be forbidden, but the right kind and amount of work should be found for each case. This may lead to far-reaching improvement lasting for years even in apparently quite severe cases.

83. **Magnesium Sulphate in Tetanus.**—Cloetta concludes this pharmacologic study of magnesium sulphate with the statement that this method of treating tetanus is like the old curare treatment of tetanus come to life again, only that a central-sensory action is superposed on the purely peripheral-motor paralysis induced by curare. This superposed action does not reduce the dangers of magnesium sulphate. The only advantage of the latter is that its action can be rapidly annulled with calcium but even this may come too late to arrest the paralysis of the respiration as happened sometimes in his experiments. In dogs the magnesium salts do not penetrate into the protoplasm of the brain, another point in which anesthesia from magnesium sulphate differs from that with the bodies of the alcohol series. The difference with the latter between the action on the periphery and on the center does not exist with magnesium sulphate. Other peculiarities are that the paralysis affects both the sensory and motor spheres, and that the magnesium salts do not behave in accordance with the lipoid theory.

84. **Alcoholism and Epilepsy.**—Stuchlik writes from Bohemia that his study of the family history of 176 epileptics showed alcoholism in one or both parents in 36 per cent., and among the grandparents in 38 per cent. A number of family trees up to five generations are given which confirm the importance of liquor drinking as a factor in epilepsy in children. An inheritance of epilepsy itself was evident in only 6.4 per cent., and in the direct progenitors only in 4.1 per cent. Other predisposing affections, hysteria, idiocy, organic brain disease or constitutional disease were still rarer, but the epilepsy has a tendency to develop earlier with an inherited taint of this kind. Fully 43 per cent. of the epileptics had at least one alcoholic progenitor. In 50 per cent. of the cases in which the parents were alcoholic, the grandparents and side branches of the family were healthy.

87. **Catastrophe Medicine.**—Zangger remarks that most of the catastrophes of our day are the by-effects of progress in technic. The effect on the survivors of earthquakes, explosions and caving in of mines is far from being so severe as the effect of the catastrophes of the war. Shell explosions in the trenches and buildings generate or release gases in confined spaces like an explosion in a mine. But the mine accident and the earthquake act on persons in their normal condition, while in war the men are under intense and long continued physical strain and excitement. The invalided combatants in the present war who are coming in large numbers to Switzerland to recuperate present conditions remarkably similar to those after natural catastrophes, only more pronounced. The prognosis is good under suitable measures. The heart and nervous system of course suffer most and the multiplicity of injurious factors, the strain, the gases, the chilling, irregular eating, etc., in addition to the wounds, all have their share in inducing the syndrome. He classifies the various clinical pictures that may be encountered from the mild cases with merely unstable heart and intense exhaustion to the actual psychoses and the cases in which some latent tendency was aroused and fanned into a flame, as when typical exophthalmic goiter develops in the course of a few days.

Deutsche medizinische Wochenschrift, Berlin

December 10, XL, No. 50, pp. 2057-2084

88 *Wounds of the Spinal Cord in War. (Schussverletzungen des Rückenmarks.) R. Finkelnburg.
89 *Tetanus. Lewandowsky.
90 Tangent Wounds of the Skull. (Tangentialschüsse des Schädels.) C. Longard.
91 Wounds of the Jaws in War. (Schussfrakturen der Kiefer und ihre Behandlung.) Adloff.
92 *Cystin Stones and Cystinuria. A. Neumann.
93 *Simplification of Technic for Agglutination Reaction. (Vereinfachung der Gruberschen Reaktion.) L. v. Liebermann and J. Acel.
94 Digestion of Liver Tissue in the Abderhalden Test Applied to Hard Drinkers. (Abderhalden-Serum Reaktion von Lebergewebe bei Alkoholisten.) E. Martini.

February 4, XLI, No. 6, pp. 153-180

95 *Vermin. (Bekämpfung der Läuseplage.) K. Kisskalt.
96 Hygiene in the Field. E. Hesse.
97 Aneurysms from Wounds in War. A. Bier. Commenced in No. 5.
98 Abdominal Wounds. (Richtlinien für die Notwendigkeit des Eingriffs bei Bauchschüssen.) H. Töpfer.
99 Obstruction of Mesenteric Vessels. (Zur Klinik und Diagnose des mesenteriellen Gefässverschlusses.) Rupp.
100 *Food during the War. (Kriegsernährung.) J. Schwalbe. (Nutzbarmachung der Küchenabfälle für die Volksernährung.) W. Hanauer.

88. **Gunshot Wounds of the Spinal Cord.**—Finkelnburg reports several cases of a bullet wound of the spinal cord which presented every evidence of a transverse lesion of the cord but the trouble was merely microscopic changes from the concussion, and these in time gradually subsided completely. It took weeks and months in some of the cases, and consequently one should not be in a hurry to operate under these circumstances, but wait to see if the spinal cord will not recuperate spontaneously. Necropsy in one case confirmed the microscopic character of the changes; although the injury was in the upper thoracic cord, the changes extended down into the sacral region. An operation had been attempted in this case about the second week and the patient died on the table. The microscopic changes had evidently reduced the resisting powers so that the man was unable to stand general anesthesia.

89. **Tetanus.**—Lewandowsky suggests that it might be well to inject antitetanus serum higher up in the spinal canal than is usually done, following Jonnesco's technic for high

spinal general anesthesia, puncturing in the cervical instead of the lumbar region.

92. **Cystinuria.**—Neumann reports a case of cystin concrements in the bladder and one case with cystin concrements in the kidney. The latter patient was a young woman who had always felt well until, two months before the operation, she complained of paroxysmal pains in the right lumbar region and the kidney could be palpated as a tender but not fluctuating tumor. A stone was evident on roentgenoscopy, convenient for pyelotomy. It weighed 2.21 gm. and its hardness and amber-like appearance disclosed its cystin nature. The urine had never shown anything macroscopically abnormal, but cystin crystals were found in it, and the patient seemed to be inconvenienced by the cystinuria as the pallor, languor and occasional pains persisted, occurring in both kidneys although roentgenoscopy failed to disclose any tendency to formation of new concrements. Various experimental diets were tried without material benefit. The other patient was a small boy from Russia; the stone was in the bladder and weighed 7.32 gm. (These cases have been published elsewhere and were mentioned in THE JOURNAL, January 16, p. 282.)

93. **Simplification of Agglutination Test.**—Liebermann announces that by drawing the blood direct into distilled water the corpuscles are at once destroyed, and the clear fluid resulting can be used just as well as the serum alone. He draws two drops of blood into 1 c.c. of distilled water. One drop represents about 0.05 c.c. serum and the dilution is about equivalent to 1 in 20. He adds to the limpid red fluid 1 c.c. of saline and continues diluting with different amounts of saline to make up 1 c.c. each time. Control tests with the ordinary technic confirmed in every respect the reliability of this simplification of the Widal test.

95. **To Get Rid of Vermin.**—Kisskalt describes various means for this purpose, advocating placing the clothing in an oven and heating to 70 C. (158 F.). This kills both lice and nits in ten minutes. As the nits are found mostly in the seams, they can be killed by passing the flame of a candle along the seams. They generally drop off at once. Nits are not killed by exposure to minus 5 C. (23 F.) over night. When the clothing cannot be taken off, the most reliable means to keep lice away seems to be to wear silken underwear, old silk shirts can be used for the purpose. Whether it is the smell of the silk, or that the lice cannot cling to silk—whatever the reason, he has found this the most certain of the measures that can be applied when it is impracticable to remove the clothing. Rubbing off the skin with benzin has proved effectual, but the so-called insect powders are of little use. He has seen lice crawling around for days in a box of unadulterated insect powder. Oil of fennel and oil of anise lose their strength soon and they destroy the appetite.

100. **Food of the Populace in War Time.**—Schwalbe comments on the various measures that have been taken to conserve the food supply. The consumption of protein and fats will have to be somewhat lower in comparison to the consumption of carbohydrates. Sugar is on hand in profusion and has not gone up in price. The directions which he gives and quotes from others are all in the line of pleas for economy and careful cooking. Persons in any land wishing to practice economy may get many useful hints from this article. One special point that has been brought into prominence by the war, he says, is the lack of training of girls in marketing, cooking, and utilizing the foodstuffs to the utmost. Girls should be systematically trained along these lines far more effectually than has been the case to date. He relates that even when the mistress of the household is ready and anxious to economize on foodstuffs, the servants often object. One housewife complains: "My maids would never think of throwing away a coin in the garbage. Even a penny would be carefully picked out of rubbish, but they think nothing of throwing away twenty times this amount in still usable food, and when the mistress complains the maids pack up and leave." This mistress declares that the only help will be for the authorities to declare martial law in each household. Schwalbe cites in full a number of circulars that have been published to aid the household in its menus, and reviews several books on the subject. He calls on the medical profession as inevitably the leaders in educating the public to economy and judicious use of foodstuffs.

Hanauer advocates drying kitchen refuse at central stations to make it suitable for a durable fodder. He states that cattle, hogs and poultry like and thrive on this dry fodder.

Medizinische Klinik, Berlin

January 24, XI, No. 4, pp. 89-120

101 Experiences with Gunshot Wounds of the Spinal Cord and Brain. (Schussverletzungen des Rückenmarks und Gehirns.) T. Rumpf.
102 Experiences with Gunshot Wounds of the Chest. (Brustschüsse.) J. Rotter.
103 *Superficial Lesions Tending to Cancer. (Vorstufen und Haftstätten primärer multipler Epitheliome.) G. Nobl.
104 Antigen Treatment of Typhoid. F. Ditthorn and W. Schultz.
105 Localization of Bullets in Bone. (Röntgenologische Ortsbestimmung bei Fremdkörpern im Knochen.) F. H. J. Krummacher.

103. **Forerunners of Multiple Epitheliomas.**—Nobl cites data from the literature to show the extreme rarity of multiple metastasis in the skin from cancer elsewhere. He also reviews what has been published on the connection between trauma and cancer of the skin. Röpke found a history of a single trauma in 11.3 per cent. of 1,748 cases of cancer of the face or scalp. Nobl relates further his experience with multiple primary and remote epitheliomas which had developed from senile warts, or from keratomas under chemical ray action, also a number of unusual cases of senile warts—benign epitheliomas—which under trauma or other influences assumed a malignant growth. One patient, a man of 63, developed in the course of two years innumerable warts on the head and trunk and some of them assumed a malignant type. Twenty of this kind have been excised to date, all verified by the microscope as cancer. Another patient of 70 has four epitheliomas at remote points but all on a basis of keratomas or warts. He gives illustrations of several in this group of eight cases of multiple cancers of the skin in the elderly. In a further group of seven cases he witnessed the development of Roentgen cancer on a keratoma. When cancer develops on a xeroderma the pathogenic rôle of the chemical rays is evident. Cancers on children are predominantly of this xerodema type.

Münchener medizinische Wochenschrift, Munich

January 26, LXII, No. 4, pp. 105-144

106 *The Cerebrospinal Fluid in Diagnosis. (Heutiger Stand der Liquordiagnostik.) V. Kafka.
107 Pneumococcus Peritonitis in Parturient. E. Wetzel.
108 Copper Salts in Treatment of Tuberculosis in Guinea-Pigs. (Wirkung der Kupferbehandlung auf das tuberkulöse Meerschwein.) Gräfin von Linden.
109 *Habitual Rumination of Alleged Traumatic Origin. (Rumination als angebliche Unfallsfolge.) R. Wollenberg. Commenced in No. 2.
110 Prevention and Treatment of Freezing Injuries. (Erfrierungen im Felde.) P. L. Friedrich.
111 *Operative Mobilized Joints Stand Stress of Active Military Service. E. Payr.
112 *Improved Technic for Cultivation of Typhoid Baeilli. H. Koenigsfeld.
113 Bromin Chloroform as Inexpensive Substitute for Tincture of Iodin. (Vorschlag eines Ersatzes von Iodtinktur durch Bromchloroform in der Chirurgie, auf Grund experimenteller Versuche.) K. Feist.
114 *Drain for Abscess in Brain. (Zur operativen Behandlung der Hirn- und Ohrschüsse.) R. Barany.
115 *Orthopedic Treatment of Spasms after Wounds of the Head. H. v. Baeyer.
116 *Magnesium Sulphate in Tetanus. J. Schütz.
117 Prophylaxis of Venereal Disease. C. Bruck.
118 Hematomas and Aneurysms. A. Mueller.
119 Treatment of Compound Fractures. (Schienen- oder Gipsverbände bei den komplizierten Frakturen der Knochen und Gelenke?) G. Hohmann.
120 *The Heart Findings in the Wounded. (Herzbefunde bei Verwundeten.) M. Fischer.

106. **Diagnostic Reactions in the Cerebrospinal Fluid.**—Kafka has been comparing the findings in the cerebrospinal fluid with the various differential tests in vogue, as he describes in detail. The results have convinced him that none of them is decisive and hence that it is better to apply several. The findings with the goldsol test were so contradictory in his experience that the testimony with this test

should not be heeded unless it confirms that from the other tests. It is possible to apply a series of different tests with only a total of 7.5 c.c. of cerebrospinal fluid, namely, the cell count with 0.2 c.c.; the globulin test with 1.5 c.c.; the hemolysin and Wassermann test, 5 c.c.; the total albumin (Brandberg) 0.5 c.c. and the Pandy test with 0.04. These figures are the minimum, using a capillary pipet. With a mixer the maximum is twice the above figures. The findings with these tests, he says, throw light on the cerebrospinal fluid from all sides and explain the pathogenesis and the nature of the reactions themselves. He gives a chart of the findings in a typical case of general paresis before and after a first and a second intraspinal injection of salvarsan.

109. **Rumination as Alleged Result of Traumatic Injury.**—Wollenberg undertook extensive experimental research to study the nature of rumination as on his testimony was to depend the outcome of a claim for damages. True rumination is when the stomach muscle automatically contracts and forces its contents back into the esophagus. Certain persons are able to do this by their own volition—a spurious form of rumination.

111. **Outcome of Operative Mobilized Joints.**—Payr reports with pride that two cavalry officers have gone through the campaign to date without the least disturbance from the knee which he had previously operated on. He had mobilized the totally stiff joint and interposed a pad of fascia and fat. This has restored practically normal function to the joint even through the stress of the active campaign, which he regards as the severest test of his arthroplastics that can be imagined.

112. **Simplification of Technic for Revealing Typhoid Bacilli in Small Amounts of Blood.**—Koenigsfeld combines the enrichment, the growth on a solid medium and the differentiation—all in one procedure. Two kinds of culture medium are used, Endo's and the Drigalski-Conradi, but mannite is used in the latter instead of lactose. Bile is added to each tube and this, on top of the slanting solid medium, is inoculated with the blood. Only three or four drops of blood are required for each tube. The bile has a tendency to check the development of all except typhoid bacilli. In ten or fourteen hours the characteristic colonies have developed. The colon bacillus turns both tubes red; acid-forming cocci turn the Endo red but leave the mannite tube colorless, and the non-acid-forming leave both unchanged. Comparison with other technics confirms the reliability of this method while its results are obtained from ten to twenty-four hours earlier. Differentiation is also possible from the first growth of the bacilli, and they develop more luxuriantly than with other technics, and permit an early agglutination test.

114. **Drainage of Brain Abscess.**—Barany relates his discouraging experiences with suppuration following wounds in the brain until he learned to drain with a single narrow straight strip of rubber tissue. The abscess drains better and has better chances for healing when the head is kept up. He dresses it with the patient seated as the pressure in the brain is much lower when the head is up unless the brain is actually swollen. The change of position thus reveals whether the brain is swollen or not. By treatment on these principles he has saved four out of twenty men with abscesses in the brain; they are now healed and have had no trouble for several weeks, and a number of others are well on the road to recovery. In all his thirty-nine cases of wounds of the head, infection was already installed when they reached the hospital. In fourteen other cases the dura had not been injured and recovery was prompt in every case.

115. **Orthopedic Treatment of Spasmodic Contractions.**—Von Baeyer has been making a special study of spastic paralysis from various causes, and has found that an inelastic band around the limb has a marked effect in reducing the tendency to contracture. As the spasm seems to be the result of loss of inhibitions, he aims to reenforce what inhibiting power there is left. He assumes that the inhibition is started or directed by sensory impressions, and it is a familiar fact that the sensory perception of a movement in a muscle, the sensation of contraction, is much increased by having a band around the muscle. Whatever the explanation, he declares, the fact remains that a band about 3 cm. wide, an inelastic belt band, buckled around the limb, too loosely to affect the circulation, has a marked effect in reducing spasmodic contraction. He has never known it to fail in numerous cases of paralysis from various causes. A band around the waist between the crest of the ilium and the trochanter has proved useful likewise in treatment of disturbance in equilibration with lesions in the cerebellum or with multiple sclerosis.

116. **Magnesium Sulphate in Tetanus.**—Schütz has not had any experience with tetanus, but he calls attention to his experimental research on magnesium sulphate which demonstrated that the drug has a special influence on the heat regulating centers. In rabbits the temperature invariably dropped parallel to the action of the drug otherwise—it was not a consequence of its anesthetic action but a parallel manifestation. The symptoms of paralysis were invariably ushered in by a steeper drop of the temperature. These facts repeatedly confirmed on rabbits suggest that the temperature might prove in the same way in the clinic a sensitive and reliable index of the action of magnesium sulphate. By systematic temperature curves it may be possible to standardize the dosage of the drug according to the indications in the individual cases.

120. **Heart Findings Among the Wounded.**—The heart is regularly examined when the wounded reach the base hospital at Bingen, and signs of heart trouble were found in 51 of 131 patients who had never previously known of any cardiac or valvular anomalies. In 27 other cases there was a history of acute rheumatism, scarlet fever or valvular defect. The large number of abnormal findings among these picked men indicates that the trouble is the result of the stress of the campaign transiently weakening the heart.

Therapeutische Monatshefte, Berlin

January, XXIX, No. 1, pp. 1-64

121 *Medical Memories of Franco-Prussian War, 1870. (Kriegsmedizinische Erinnerungen.) O. Heubner.

122 *Operations on the Thymus and Their Effects on the Organism. H. Klose.

123 *Obesity and Its Treatment. (Fettleibigkeit.) C. von Noorden.

124 Vaccines and Serums. (Impfstoffe und Heilsera.) P. Ehrlich and H. Sachs.

121. **War Memories.**—Heubner recalls his experiences at a hospital in Leipzig during the war of 1870 where hundreds of sick and wounded soldiers were in his charge. Typhoid and dysentery cases formed about 25 per cent. of the total. Another frequent syndrome was that of extreme myasthenia, the muscles so weak as to be practically beyond control, as if paralyzed, while the slightest contact was painful. The gradual development of the myasthenia was preceded by total lack of appetite. When the anorexia could be conquered, the men soon regained normal health. He ascribes the condition to the exhaustion of the muscles from overexertion without proper nourishment and rest. A number of the men were sent to the hospital with the diagnosis of lung, liver or stomach trouble on account of persisting pain but nothing organically wrong could be found except a long stripe of extreme tenderness with severe pain on pressure. Pressure from some strap finally explained all these cases.

122. **Operations on the Thymus.**—Klose remarks that to date little is known of the clinical consequences of thymus deficiency, but hyperplasia of the thymus has come into prominence as a factor in exophthalmic goiter, some having found the thymus enlarged in up to 90 per cent. of their cases. Crotti has reported two cases of exophthalmic goiter in which the patients succumbed to mechanical pressure from their large thymus. To date, Klose says, no case of exophthalmic goiter is known in which a complete cure followed an operation on the thymus alone. Enlargement of the thymus may be shown by the Roentgen rays, and myasthenia is further a symptom of abnormal thymus functioning. The patients feel so weak in the knees that they fear they will fall. No instance is known in which an operation on the thyroid alone abolished these myasthenic phenomena.

Since 1910, of the 130 cases of exophthalmic goiter given operative treatment at his clinic 8 patients died the "thymus death" which he thinks would not have happened if the thymus had been resected with the thyroid. The postoperative reaction after the dual operation is minimal in comparison to that after an operation on the thyroid alone. The patients are given a one or two weeks' course of treatment beforehand, dietetic, medicinal and psychic. The goiter and heart are kept covered with ice. The operation is done under local anesthesia. Tumors in the thymus alone have been known to induce Basedow symptoms. In some cases of thymus tumor, myasthenia was the principal symptom, and this suggests investigation of and possibly an operation on the thymus in treatment of myasthenia. As a rule, to date, myasthenic patients never get to the surgeon but die in the hands of neurologists or internists. Hemorrhage in the thymus of new-born babes is not rare but there are probably hemorrhages elsewhere from the same cause, the birth trauma. Metastatic suppuration is liable to occur in the thymus after scarlet fever, diphtheria, erysipelas and smallpox, but it is most common after measles. Umbilical infection is also liable to metastasis in the thymus. The prognosis is grave but one successful operative case has been reported.

123. **Obesity.**—Von Noorden emphasizes the necessity for distinguishing between obesity due to overeating or laziness and obesity for which some constitutional cause is responsible, as treatment varies widely with the factors involved. In the exogenous type, overeating and lack of exercise may combine to induce the obesity; the tendency to overeat and to refrain from exercise may be due to abnormal instincts, possibly the result of reflexes perverted from normal by some chemical influence. It is usually possible in time to train these instincts into normal routes. Reasoning, compulsion and psychic measures are usually necessary, in addition to diet and exercise, in these cases. The other type of obesity, the endogenous, constitutional type, he regards as traceable to abnormal thyroid functioning. Congenital or acquired weakness or degeneration of the thyroid may induce the obesity directly or the thyroid may become a factor in the obesity only secondarily, as in case of pancreas disease (demonstrated only experimentally as yet); disease in the ovaries or testicle (deficiency of the interstitial substance); disease in the pituitary body (adiposo-genital dystrophy); disease in the pineal gland or thymus (both dubious). There may also be a combination of both the exogenous and endogenous type, especially in the young.

Throughout the endogenous forms, abnormal thyroid functioning is common to all, and treatment of constitutional obesity must be based on thyroid treatment. It is unquestionable now that the reliance on thyroid treatment is increasing, the dread of it diminishing. The dangers from thyroid treatment are just as great as ever, but we know better how to watch out for them and guard against them. He adds that even in cases amenable to systematic dietetic measures alone, the prolonged restriction of the diet seems to him more of an evil than a course of thyroid treatment. With this the diet need not be so strictly regulated and the effect of the thyroid treatment is often permanent, so that the patients can eat like other people afterward without bringing back the obesity. During the thyroid course ample provision of albumin should be ensured. The urine should be examined often for sugar. The tendency to acceleration of the heart action and drop in blood pressure can be warded off by daily small doses of some digitalis preparation.

Thyroid treatment is not required in the exogenous type of obesity, diet and exercise answer all the purposes, and without training in this line the obesity will return whether thyroid treatment has been taken or not. Apparatus reduce obesity by electric contractions in the muscles are ridiculed by von Noorden as unable to induce any appreciable effect on the oxidation processes beyond the effect of suggestion. In conclusion he urges physicians to keep up a constant warfare against the "patent medicines" advertised to cure various ills, and especially the obesity cures, as they are by no means harmless remedies. In this connection he pays tribute to the "instructive pamphlets on nostrums published by the American Medical Association." He gives no details of his technic for thyroid treatment beyond the above.

Therapie der Gegenwart, Berlin

February, LVI, No. 2, pp. 41-80

125 *Exanthematous Typhus. (Zur Diagnose und Prophylaxe des Fleckfiebers.) G. Klemperer and W. Zinn.
126 Efficiency of Combined Treatment with Diathermia and Ultraviolet Rays. F. Mendel.
127 Roentgenology in War. M. Cohn.
128 Treatment of Inherited Syphilis. A. Baginsky. Commenced in No. 1.

125. **Exanthematous Typhus.**—Klemperer and Zinn give the details of the recent fatal typhus of Dr. Jochmann, the chief authority on typhus in Germany, and they expatiate on the lessons learned therefrom. The old idea that typhus is extremely contagious to young and old has been shorn of its terror as experience has demonstrated—and especially in Jochmann's case—that a thoroughly bathed and cleanly attired typhus patient does not breed new cases. No case developed among the several physicians, the nurses or the members of the family, wife and children, all in close attendance on Jochmann. He had attended several prisoners sick with typhus and also his assistant, without contracting the disease. Then he made a visit of inspection to a camp of Russian prisoners where there were numerous cases of typhus. The mattresses lay close together, with only narrow aisles between, and lice abounded everywhere. They could be seen crossing the aisle. He had supposedly prepared to ward off vermin, wearing two pairs of stockings and high boots; all he had on was discarded immediately afterward and he took a full bath rubbing well with soap.

He was not aware of any vermin having got on him, but the disease developed the tenth day thereafter. Roseola appeared faintly the sixth day but subsided the seventh. The ninth day it returned, with a petechial character and death occurred the eleventh day. The symptoms long were merely those of any severe general illness of a septic or typhoid type. The negative bacteriologic findings and the petechial roseola finally confirmed the diagnosis. Experiences are accumulating that typhus patients free from vermin can share the bed of other patients or the healthy without transmitting the disease. Lice cannot bear heat and are killed off in a bath of 35 C. (95 F.) and upward.

Wiener klinische Wochenschrift, Vienna

January 28, XXVIII, No. 4, pp. 85-112

129 Vaccine Therapy of Typhoid. A. v. Koranyi.
130 *Micro-Organic Changes from Shell Explosions. (Ueber den sogen. Nervenshock nach Granat- und Schrapnellexplosionen.) A. v. Sarbo.
131 *Arteriotomy for Embolism. D. Pupovac.
132 Roentgen Differentiation of Gas Phlegmons. G. Schwarz.

130. **The So-Called Nervous Shock from Shell Explosions.**—Von Sarbo discusses the commotion caused in the brain tissues and fluids by explosion of a shell nearby, and describes two typical sets of symptoms which he has had occasion to observe in the base hospitals. The cause seems to be something more than merely molecular changes and yet it is not severe enough to be an actual organic injury. He regards it as the result of micro-organic changes, and if the subjects are kept quiet long enough the condition rights itself. The two syndromes to which he refers are brought on only by physical, never by emotional causes, and they cannot be influenced by psychic measures. They vary with the seat of the micro-organic changes and they are frequently mistaken for simulation or hysteria. All that is needed is complete rest. Frequent examinations and trying one therapeutic measure after another are harmful and are liable to breed a superposed hysteria.

131. **Arteriotomy for Embolism.**—Pupovac extracted an embolus from the femoral artery on one side and then not long after had to do the same operation on the other. Each time the embolus was easily extracted and the continuity of the artery restored. It straddled the bifurcation at the mouth of the deep femoral. The patient was a man of 25 and he succumbed a few months later to the progress of his endocarditis. The *Streptococcus viridans* was found in

both emboli. The first embolus was extracted sixteen hours after the first signs of its presence; the interval with the second embolus was only five hours, and there had been no time for thrombi to form. In the first artery the repair was less perfect, and there had evidently been thrombosis in a communicating branch artery. The age of the patient is an important element in the prognosis. The necropsy findirgs in the second artery showed surprisingly complete repair.

Zentralblatt für Gynäkologie, Leipzig

January 30, XXXIX, No. 5, pp. 65-80

133 Glycogen Content of Uterine Mucosa. (Glykogengehalt der Uterusschleimhaut.) Aschheim.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 28, XXXVI, No. 8, pp. 113-128

134 *Symptoms from Metastasis of Cancer in the Mediastinum. (Sindrome mediastinica da metastasi neoplasica.) G. Manara.

January 31, No. 9, pp. 129-144

135 *Intravenous Injection of Mercuric Chlorid in Treatment of Acute Articular Rheumatism. V. Martone.

136 *Treatment of Aneurysms. E. Maragliano.

134. **Metastasis in the Mediastinum of Cancer.**—Manara's patient was a man of 25 and the symptoms suggested to a certain extent pleuritis with effusion, pericarditis, or a syphilitic or tuberculous process in the lung, but each of these could be excluded in turn on account of the absence of certain features. The diagnosis was therefore narrowed down to a tumor in the mediastinum, and it was learned that a cystosarcoma had been removed nearly a year before from the muscles near the left margin of the sternum. Mechanical compression from the metastatic tumor explained the edema of the face and neck, the thrombophlebitis of the left upper arm, the retrosternal dulness and dyspnea.

135. **Intravenous Injection of Bichlorid in Acute Rheumatism.**—Martone reports five extremely severe cases in which salicylic medication failed to influence the clinical picture or caused symptoms of intoxication so serious that it had to be discontinued. As a last resort he turned to mercuric chlorid and gave it by intravenous injections in doses from 1 to 5 mgm., repeated every day or so well into convalescence. All the patients given this treatment recovered, and none has shown any evidence of a return of joint trouble since. Only one was left with a slight valvular defect; in the others the endocarditis, if such existed, seemed to be completely cured. He gave ten injections in one case, beginning with 2, 3 and 4 mgm., and increasing to 5 mgm. toward the end. In another three injections seemed to conquer the disease but he continued with three more on alternate days to make sure of the result. In another case no benefit was apparent under salicylates for a month, and then five injections of the mercuric chlorid were given and the cure was soon complete. He followed Baccelli's technic in every particular.

136. **Treatment of Aneurysm.**—Maragliano says that in a certain percentage of cases it may be possible to overcome the effects of an aneurysm and induce a clinical cure by the treatment he outlines. It consists chiefly in strict bed rest, reduction of the diet to four small meals a day without fluids; only 300 c.c. of fluids are permitted in the twenty-four hours. Venesection may be necessary and ice to the region of the aneurysm, with local injections of ergot around the aneurysm and injection of gelatin into the buttocks, with potassium iodid internally.

Pediatria, Naples

February, XXIII, No. 2, pp. 81-160

137 *Tartar Emetic in Internal Leishmaniosis. G. di Cristina and G. Caronia.

138 Blue Spot on Abdomen. (Macchie mongoloidi a sede sulla superficie ventrale del corpo.) O. Cozzolino.

139 Digestion of Casein in Infant's Stomach. G. Finizio.

140 Pernicious Anemia in Three Infants. R. K. Marinucci.

141 Tardy Deformed Growth of the Long Bones in Child of 2½ with Inherited Syphilis; Retrogression to Normal under Specific Treatment. O. Pentagna.

142 Tuberculous Polyserositis. (Caso di cirrosi cardio-tubercolare con tuberculomi cerebrali.) S. de Stefano.

143 Ulceration in Stomach and Duodenum under Experimental Pyrodin Anemia. A. Corica.

137. **Tartar Emetic Cures Internal Leishmaniosis.**—Antimony and potassium tartrate has displayed considerable curative power in Oriental sore and ozena, and this suggested its use in internal leishmaniosis. Di Cristina and Caronia have applied it in ten cases and the successful outcome justifies, they assert, that tartar emetic must be regarded as the specific remedy for internal leishmaniosis. The mortality in Italy is high, Jemma reporting it at 93 per cent. while Caronia found it 86 per cent. in seventy-eight cases. Recovery is rarer the younger the patient. Di Cristina found the mortality 93 per cent. under 2 years of age but only 87 per cent. in older children, in his experience with 130 cases at Palermo and Naples. This high average mortality renders most significant the fact that all recovered but one of the eight children given a systematic course of the tartar emetic, especially as all were only from 5 to 27 months old except one boy of 6.

The antimony and potassium tartrate was given by intravenous injection in a 1 per cent. solution in redistilled water. The course of treatment ranged from ten to forty days and the total amount of the drug was from 0.06 to 0.84 gm. When the disease has reached its last stage the organism is unable to recuperate even if all the micro-organisms are destroyed. One child died from nephritis. He had been given large doses of the tartar emetic from the start, from 0.04 to 0.08 gm. and although the leishmaniosis subsided fatal kidney trouble developed. After this experience the dosage was changed, and the course was started with small doses, watching the effect and gradually increasing until a total of 0.25 gm. had been given in five injections in three weeks in one case; in another 0.35 gm. in ten injections in forty days. By this gradual tentative dosage it is possible to detect at once any injurious influence on the kidneys.

Riforma Medica, Naples

January 30, XXXI, No. 5, pp. 113-140

144 Conditions that Favor Precipitation of the Cholesterin in the Bile. (Contributo alla patogenesi della calcolosi biliare.) L. d'Amato.

Hygiea, Stockholm

LXVII, No. 1, pp. 1-47

145 *Transpleural Resection of the Cardia and Esophagus for Cancer; Two Cases. J. Borelius.

146 *Successful Extraction of Embolus in Brachial Artery. R. Lundmark.

145. **Transpleural Resection of the Lower Esophagus.**—Borelius attempted this operation in five cases but found conditions inoperable in all but two. These patients were men of 46 and 60 and he was able to do the resection in both but neither patient survived, one dying in collapse the eighteenth hour, the other succumbing soon to pneumonia. He applied the technic with which Torek has reported a successful case, and considers that the history of this one successful case justifies the attempt in these otherwise doomed cases if the patient is informed as to the risks and is willing to take them.

146. **Arteriotomy for Embolus in Brachial Artery.**—Lundmark's patient was a woman of 40 with chronic heart disease but compensation had never failed. A short time after a felon, an embolus lodged in the brachial artery, where the deep brachial branches, and it was successfully removed ten hours after the first symptoms. In seven cases of arteriotomy for embolus on record, three proved successful, the interval ranging from three to seven hours. Key's patient was a man of 43 and the embolus was at the fork of the femoral artery and was successfully removed after seven hours. Bauer's patient was a man of 39 and the large embolus at the fork of the aorta was successfully extracted after three hours. The only other successful case in his compilation was reported by Mosny, the embolus being removed from the femoral artery after six hours. In Lundmark's case the embolus extracted from the brachial artery was 3 cm. long and about 6 mm. thick. The embolus usually straddles a bifurcation, and the shorter the interval before the arteriotomy the better the prospects.